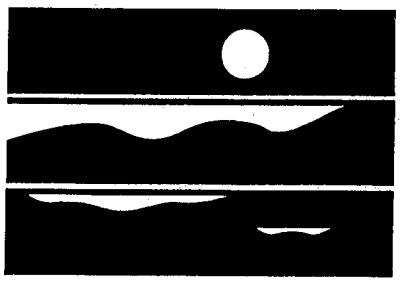

Developing and Evaluating Environmental Education Programs

Prepared by

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for

Washington State Department of Ecology
Evaluating Environmental Education Programs Workshop

Publication #94-66

In preindustrial societies, the rate of change was such that what a person needed to know to function as an adult could be learned in childhood. In societies hurrying to catch up, however, and in our own society with its accelerated rate of change, the urgency of dealing with today's social realities lies with adults. Society no longer has the luxury of waiting for its youth.

S. Merriam and R. Cattarella in Learning in Adulthood, 1991.

Environmental ignorance — a lack of environmental awareness and responsibility — underlies all of the environmental threats described and prioritized in the State of the Environment Report. Consequently, **environmental education** — what James Mason Woods called "education for living" — is cited repeatedly as the linchpin of any long-range plan to reduce or eliminate those threats.

Toward 2010: An Environmental Action Agenda, 1990

If we do not change our direction, we are likely to wind up where we are headed.

ancient Chinese proverb

If you don't know where you're going, than any old road will do.

Through the Looking Glass, Lewis Carroll

Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it is the only thing that ever has.

Margaret Mead

This workbook was developed with generous contributions of expertise, insight and energy from Bob Steelquist, Puget Sound Water Quality Authority.

Seminar design:

1 day workshop

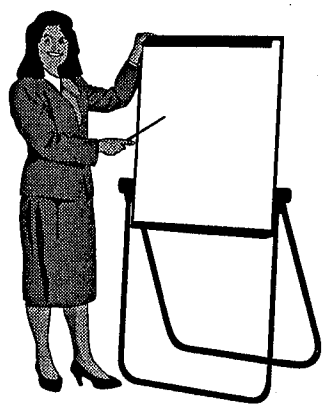
50% training session

50% interactive hands on practice

Seminar objectives:

Use simple, practical methods and tools in an interactive approach to . . .

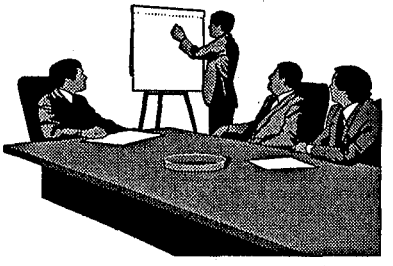
- ❑ Enhance your knowledge and understanding of environmental education evaluation tools, with emphasis on Bennett's Model.
- ❑ Give step-by-step tools for planning evaluation into education program designs.
- ❑ Enhance your confidence level with hands on activities applying new evaluation knowledge and skills to your programs.
- ❑ Develop an informal network support system to provide ongoing assistance in evaluation strategies.



Evaluation Needs Assessment

Who is the Evaluation For?

- ✓ Yourself
- ✓ Participants
- ✓ Stakeholders



Evaluation Needs Assessment

Why Are You Evaluating?

- ✓ Determine Program Effectiveness
- ✓ Change Program Design
- ✓ Change Organization Infrastructure

Evaluation Needs Assessment

Stakeholders

Stakeholders	Priority
Business	
Commissioners/Mayors	
Funding Sources	
Managers	
Program Participants	
Local Governments	
Press	
Self	
Advisory Committee	
Teachers	

Evaluation Needs Assessment

Report Questionnaire

Who is the evaluation for?

What decisions need to be made from the evaluation? What outcomes will those decisions accomplish?

What information do decision-makers need to make decisions?

Table of Contents

Page

Introduction

Just a few years ago, Washington citizens gathered in meetings all over the state to create a vision for their environmental future. A clear consensus emerged from those public meetings; environmental ignorance--a lack of environmental awareness and responsibility--underlies most all environmental threats. Consequently, environmental education was cited repeatedly as the linch pin of any long-range plan to reduce or eliminate those threats. Like the citizens in those Environment 2010 meetings, our law makers and leaders frequently propose education as a significant tool to prevent pollution and protect the environment.

But often we, as busy educators, have not made the time to show the success of our education programs. Predictably, resources to provide them are threatened with cuts. How can we show for ourselves, our audiences, and our managers that our education programs are effective?

The first step is planning a detailed program plan for implementing your education programs. Sure, your general program plan gives some direction and you can easily put together a series of educational projects or duplicate what was done in another area. But at some point in time you will have to prove to either yourself, your agency, or your public that you are getting the best results for the time, money and efforts invested in these programs. The good news is that if you have a detailed program plan you will be able to show that:

- *Your message is reaching the correct audience.*
- *Your programs are serving the needs of the agency.*
- *Your programs are having measurable results.*
- *You are getting the best results for your time, money and effort.*

How To Use This Workbook

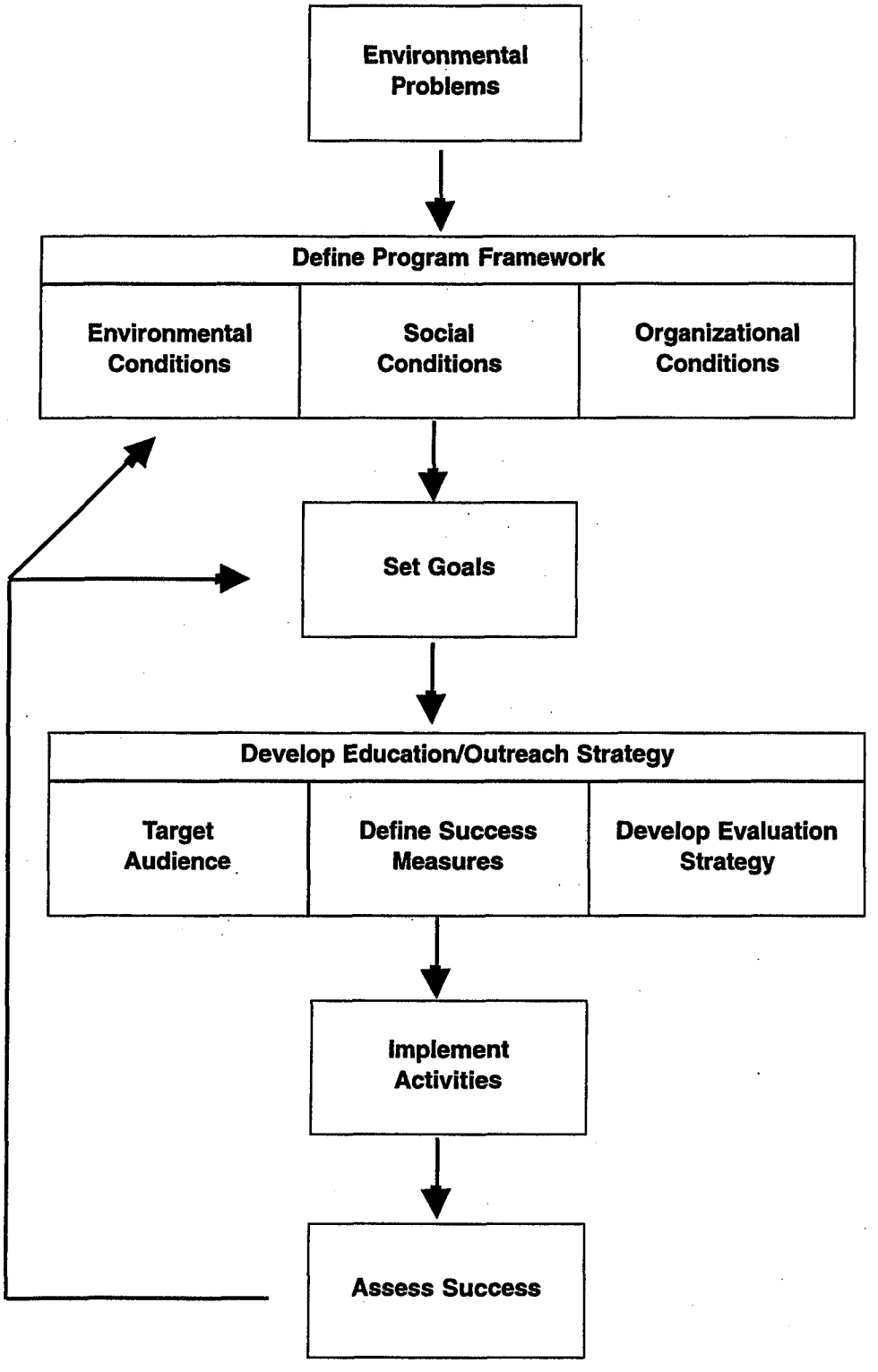
The premise of this workbook is that it is never too late to develop a good program plan. Whether you are starting from scratch, in the midst of program implementation, or trying to evaluate your programs, it is appropriate to detail a program plan. If you are at the implementation or evaluation stage, you may find that you have gone through the design stage but have not documented your decisions, assumptions or evaluation criteria. You can use this book to help you do that. If you are just starting out, use the workbook to guide you through a complete process.

This workbook provides a series of worksheets to help you detail an education program. As you move through the workbook, it will be helpful to remember you are working through a dynamic process; the steps are not discrete. You may find it necessary to go back and re-evaluate earlier steps, jump ahead a few steps to gain more information, or work on several steps at the same time. Use the workbook in a manner that is logical for your needs.

This workbook is designed to be a companion to "Designing Community Environmental Education Programs, A Guide for Local Government" (#92-99) developed by the Department of Ecology. Before using this workbook, it may be useful to review the general education guidelines found there. In places in this workbook, we refer the reader to that guide for background information.

The Planning Process

Before diving into the mechanics of the worksheets, it is helpful to have an overview of the planning process used in this workbook. Remember, each step is not discrete and you may need to spend time cycling through several steps before moving on.



Chapter 1. Defining Your Program Framework

What is a Framework?

The first step in designing your environmental education programs is to develop a framework from which you can set goals and make future decisions. Your program plan outlines the big picture. Think of this step as the next level; a more detailed survey of current conditions and a programmatic needs analysis. The graphic below outlines this step.

PROGRAM FRAMEWORK		
Environmental Context	**Social Context**	**Organizational Context**
• Environmental Risks	• Target Audiences	• Legislative Mandates
• Health Risks	• Level of Awareness	• Agency Mission/Goals
• Resources at Risk	• Impediments	• Agency Culture
• Related Environmental Issues	• Social Economic Issues	• Strengths/Weaknesses
• Behavior Changes Needed	• Technical Needs	• Organizational Changes
• Environmental Impacts Desired	• External Stakeholders	• Internal Stakeholders
▼	▼	▼
*Environmental Risk is Clear *Environmental Goals Clear	*Targeted Audience *Message Relates to Audience Concerns	*Program is Agency Priority

Why Define a Framework?

Have you ever noticed that education and technical assistance programs are often thought of as "nice to have's" and are most susceptible to budget cuts? Have you ever had your program judged by unfair criteria? Very often, this is because education programs do not clearly define the environmental, social and organizational benefits. A well defined framework will help you to show that your programs can have an environmental impact, and help fulfill agency goals. It also is an effective way to clarify the expectations others have on your programs.

Defining a framework helps focus your resources, and enables you to make your goal more specific. These steps are key to successful evaluation of your programs. Defining a framework also assures that your programs are not developed in isolation. Tying your programs to the environmental, social and agency contexts in which they will exist is the first step to assuring your program has credibility both within your organization and with targeted audiences.

The specific benefits of defining the framework for your programs include:

- Focusing Scarce Resources on Priority Issues/Needs
- Meeting Audience Needs
- Justifying the Usefulness of Your Programs to Stakeholders
- Identifying How Your Programs Fulfill Agency Goals
- Identifying Other Similar Programs
- Determining Other Needs To Support Behavior Changes (collection systems, economic initiatives, regulations, etc.)

Where To Begin

To accomplish this step, you will need to consult and involve staff, agency managers, representatives of your audience, and community members. Pages 6-7 in the Ecology's Environmental Education Guidebook (#92-99) give a good process on how to involve others in this step.

The following worksheets are designed to lead you through the thought and research process required to develop a framework. Use the checklists to look at each segment of the framework and answer the pertinent questions. Add other information as appropriate.

- The **environmental analysis checklist** will help you prioritize environmental issues and define the environmental end result of your programs.
- The **social analysis checklist** will help you determine your audience and their needs.
- The **organizational analysis checklist** will help you define your program in terms of agency needs or priorities, and identify opportunities for coordination.

In many cases you will not be able to give concrete answers to the questions. You may have to rely on assumptions. This is fine, but be sure to identify your assumptions so that you can design your evaluation strategy to test them. They may evolve as you go. Use the matrix worksheet on page 11 to summarize pertinent information and obtain buy-in from staff, management, and other stakeholders. Once this is accomplished you will be ready to set clear goals.

Environmental Analysis Checklist

What are the major environmental threats related to your environmental issue? *(Prioritize)*
(For instance, if dealing with hazardous waste disposal.)

- *What percent of the solid waste stream?*
- *Is landfill contamination a clear threat?*
- *Are there sensitive resources at risk?*
  - *Recreation*
  - *Drinking Water*
  - *Habitat*
  - *Unprotected Aquifers/Surface Water*

What are the health risks associated with your environmental problem? *(Prioritize)*
(For instance, household or small business hazardous waste disposal.)

- *Use of hazardous products in the home?*
- *SQG Worker health and safety?*
- *Risk to municipal waste collection workers?*

What are the wastes of concern and why? *(Prioritize)*

- Significant volumes
- High levels of toxicity
- Improper use of products
- Purchase choices
- History of bad disposal/management practices (be specific)

What are the desired **environmental** outcomes of education program?

Household Hazardous Waste - Example

Environmental Analysis Checklist

What are the major environmental threats related to HHW?

*425 tons/year HHW generated (0.5% of solid waste stream). Disposal practices are a problem; 85% disposed in garbage, 10% to septic/sewer, 5% to ground.
*90% of the drinking water is obtained from unprotected aquifers. Developmental, domestic and agricultural pressures already threatened ground water quality. HHW (especially oil) dumped on the ground or disposed in septic systems adds to GW contamination.
*Municipal garbage is disposed at the county owned landfill; hazardous waste can cause contamination of leachate, which could threaten both ground and surface water.
*The region is highly dependent on fish and wildlife habitat for recreation and commercial uses. Disposal of toxics that reach surface waters can have direct impacts on fish and wildlife.

What are the health risks associated with HHW disposal?

*Many household products contain solvents; their use can result in indoor air quality problems. Children and elderly are most susceptible.
*Many household products are toxic and pose a risk of poisoning.
*Solid waste collection workers may unknowingly be exposed to hazardous materials.

What are the wastes of concern and why? *(Prioritize)*

1. Used oil constitutes the largest amount of HHW; common disposal to ground or storm drain, and leaks from cars pose direct threat to water quality.
2. Paint disposal to the garbage poses a risk to the landfill. Homeowners have a large amounts of paint stored. Paint is a good candidate for recycling and reuse.
3. Homeowner pesticide use in GW sensitive areas can contaminate drinking water. Pesticide are often over used and are a good candidate for reduction and less toxic alternatives.
4. Toxic cleaners and other household products pose both disposal and use concerns.

What are the desired <u>environmental</u> outcomes of HHW education?

*Protect drinking water quality; prevent increase in toxic contaminants due to homeowner use and disposal of household hazardous products.
*Reduce the amount of hazardous materials that enters the municipal solid waste landfill.
*Decrease the amount of nonpoint pollution from dumping of oil and other wastes into storm drains and sewage systems.

Social Analysis Checklist

What segments of the population can most create the desired environmental impact?

From the standpoint of your program's delivery, what is most/least important to your audience and what are they most/least satisfied with? *(Especially important to address what is high in importance and low in satisfaction.)*

What is their level of awareness of environmental/health issues associated with this environmental issue? *(For instance, household or small business hazardous waste.)*

- Awareness of problems/solutions
- Attitudes towards problems/solutions
- Resources to create new solutions

What is their level of knowledge of health problems associated with these environmental issues? *(For instance, hazardous wastes.)*

What are the greatest impediments (real/perceived) to changing behaviors related to waste disposal?

- *Lack of disposal options*
- *Costs*
- *Regulations confusing, conflicting, restrict desired behaviors*
- *Knowledge level/trust of information sources*

What impact will adopting desired behaviors have on individuals or businesses?

- *Increased/decreased cost of disposal*
- *New behaviors more/less convenient*
- *Home/worker safety*
- *Social stigmas/benefits of behaviors*

Are there cultural/other issues that will impact behavior changes or program messages?

Who does your audience trust and rely on for credible information? *(A possible conduit for your message.)*

Household Hazardous Waste — Example

Social Analysis Checklist

What segments of the population can most create the desired environmental impact?
* Car owners who change their own oil and do other car maintenance.
* Home owners who do their own home maintenance.
*Home owners who garden and are interested in lawn care.
* Home owner groups, neighborhood groups, or service organizations who can lead changes in purchase and disposal changes amongst their peers.

What is high importance and low satisfaction to audience?
*Surveys show high importance of convenience, reasonable cost and effective alternative products.
*Surveys show low satisfaction with low number of used oil recycling and HHW collection facilities, low confidence in alternative products.

What is their level of awareness of HHW environmental/health problems?
*Most residents are aware that some products used in the home are hazardous but there is not a clear link between use, disposal, and water quality in the area.
*Residents are not aware of alternatives and disposal options.

What is their level of knowledge of HHW environmental/health problems?
*Surveys showed confusion on which products are hazardous.
*There is little knowledge about alternatives to hazardous products and how to use them.
*Although there is some awareness that disposal to the garbage is not the best option, there seems to be a little knowledge on proper disposal for specific wastes.

What are impediments (real/perceived) to changing HHW behaviors?
*Disposal options are not always convenient. HHW collection is only available twice per year, and few used oil collection points exist.
*Storing HHW seems to pose an inconvenience and some feel it is too big a risk to store.
*Less toxic alternatives often seen as not effective or cumbersome (recipes).
*Low tolerance level for pest damage, weeds, etc. to lawns and gardens.

What impact will adopting desired behaviors have on individuals or businesses?
*Using less toxic household products can reduce the risk of poisoning to children. It can improve the air quality in homes.
*Less toxic alternatives are often less expensive.
*Using less toxic alternatives may require changes in cleaning habits.

Are there cultural/other issues that will impact behavior changes or program messages?
*No significant cultural issues.

Organizational Analysis Checklist

What agency goals/needs will this education program fulfill?

- Pollution prevention goals?
- Watershed focus?

What agency goals conflict with this education program?

Is education/technical assistance a new role for your agency or program?

- New audience
- Staff adequately trained
- Staff attitude toward target audience
- Agency has the proper image to provide service

Do existing programs (internal/external to agency) already address environmental priority wastes/behaviors?

- Regulatory programs
- Educational/technical assistance programs

What gaps/duplications in existing education can you identify?

- Educational opportunities
- Information gaps
- Target audiences/behaviors

What institutional barriers may impede program success?

- Lack of adequate resources
- Unclear accountability/coordination
- Agency or program processes that frustrate or confuse staff or audience

Household Hazardous Waste — Example

Organizational Analysis Checklist

What agency goals/needs will the HHW program fulfill?

*Agency high priority goal is pollution prevention; HHW is a significant contribution to nonpoint pollution.
*HHW program specificantly targets three agency priority watersheds. (list)
*Agency is mandated to protect public health; hazardous waste is a significant risk to public health.
*The agency is also mandated to protect surface water and ground water quality from nonpoint sources.

What agency goals conflict with HHW education?

*None

Is education a new role for your agency?

*No. Education programs are an expressed tool for reaching resource and health protection goals. The public perceives the agency as a good source of information on public health related issues. Innovative programs are encouraged.

Do existing programs (internal/external to agency) already address priority wastes/behaviors?

*The solid waste utility has a well developed recycling education program. HHW is addressed in some solid waste school programs.
*Nonpoint pollution media campaigns are an on-going component of agency programs.
*Cooperative Extension has some information on pesticide alternatives through the master gardener program.

What gaps/duplications in HHW education can you identify?

*Although HHW awareness is a small component in many other educational efforts, there is no concerted effort to provide the depth of information required to motivate and activate people to make behavior changes.

What institutional barriers may impede program success?

*HHW education resources may have to compete with SW education resources

Matrix for Program Planning

Priority Problem Framework

KEY ELEMENTS	
End Result	
Behavior Changes	
Target Audiences	
Information Needs	
Other Needs	
Other Programs	
Organizational Changes	

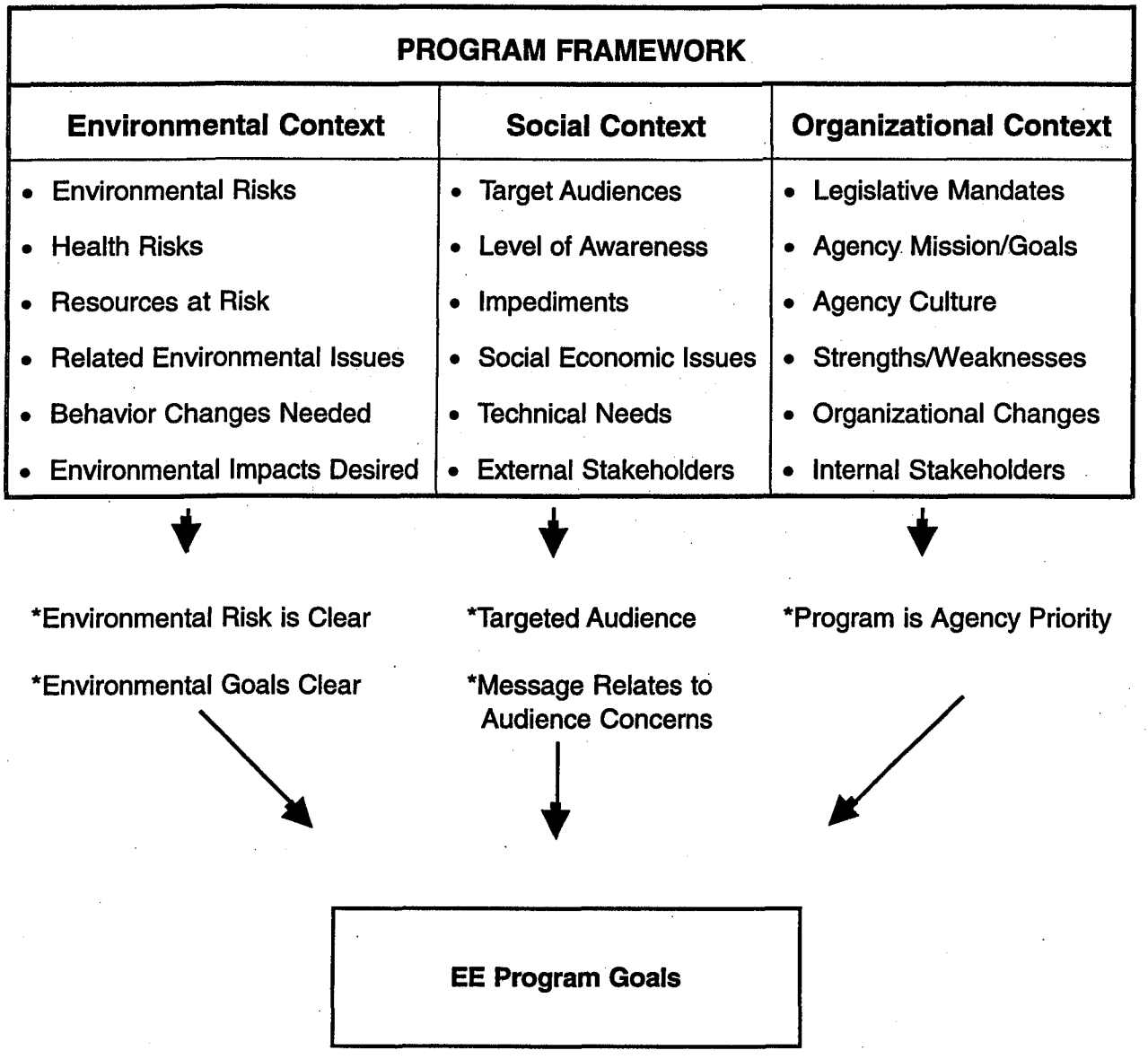
Priority Problem Framework (example)

Priority #1 - Used Oil

End Result	Water quality pollution prevented where more used oil recycled instead of dumped.
Behavior Changes	1. Recycling oil by bringing to collection centers rather than dumping down storm drain, in garage, or burying. 2. Buy refined oil.
Target Audiences	1. "DIY" - males 20 - 30 years old. 2. Students in high school and voc. tech auto shop classes
Audience – Information Needs	1. How actions affect drinking water quality and water recreation. 2. How to neatly and safely collect and store oil - keep uncontaminated. 3. Where to recycle. 4. Re-refined works.
Audience – Other Needs	1. Convenient recycling centers. 2. Collection containers. 3. Antifreeze collection (?)
Other Programs	1. SW recycling - incorporate used oil collection in lists of solid waste recycling. 2. Incorporate used oil into ongoing water quality education programs. 3. Al's Auto (other private) oil collection
Organizational Changes	1. Develop contracts/purchasing for good and contaminated oil. 2. Use of re-refined in government fleet. 3. Include used oil into water quality ordinances.

Chapter 2. Setting EE Goals

As the diagram below indicates, your environmental education (EE) goals should reflect the goals of your agency and your general program plan. Once you have placed your EE program into its framework, you can easily write goals that reflect agency priorities as well as environmental needs. Well written goals will serve to provide EE program guidance over time and unite staff, management, and other stakeholders to a common purpose.



Goal setting is a common step in program planning, but it is often confused with objectives, outcomes, and strategies. For the purposes of planning, think of goals as setting a direction for your program. Goals tell others what is important about your program. They describe your overall mission and the desired changes your program is striving to accomplish. Goals should be attainable in a reasonable time frame, but should not be so specific as to limit flexibility.

A common pitfall is to use the process as the goal. This clouds the real environmental issue. Avoid murky goal statements like, "to facilitate coordination of used oil recycling." Use the following guidelines and the worksheet on the next page to help you set clear goals for your programs.

Guidelines for Developing Goals

- Goals should reflect the desired environmental result.
- Goals should clearly communicate the overall program purpose and direction to staff, management, stakeholders, and program audience.
- Goals should reflect the social context, accurately state the problem, reflect community needs, and unite all stakeholders.
- Goals should be reachable and measurable.
- Goals should clearly reflect and be consistent with the program plan.
- Goals should clearly reflect and be consistent with agency goals and mission.
- Goals should reflect basic aspects of your education program.

Sample Goal Statements:

Protect the water quality of the area by increasing the amount of used oil recycling by targeting DIY populations to use current and future collection systems.

Prevent pollution to Clear City air quality by reducing the amount of single occupancy vehicle emissions. This will be accomplished by education, technical assistance, and incentives to increase vehicle emissions testing and use of alternate transportation.

Protect surface and ground water quality by reducing the amount of hazardous waste entering the municipal landfill by 30% in five years. This will be accomplished by providing technical assistance to small quantity generator businesses to increase proper disposal and use of less toxic alternatives to hazardous products.

Goal Worksheet

Summarize Key Information from Framework:

Environmental:

Social:

Organizational:

EE Program will meet the following Agency Goals/Mandates: *(Describe How)*

Write Above into Goal Statements (See guidelines on previous page)

1.

2.

3.

4.

Notes

Chapter 3. Develop Program Strategy

Now that you have set clear direction for your education programs, you are ready to develop a program strategy. The temptation to start here, bypassing the previous sections, or to just put together a series of common educational strategies is strong. FIGHT THE TEMPTATION!!

Your program strategy will describe the core of your education programs. At this stage, you will also begin incorporating evaluation strategies and defining your audience. These steps are described in more detail in chapter one of Ecology's Environmental Education Guide (#92-99). It will be helpful to read these sections before tackling the following worksheets.

Program Outcomes

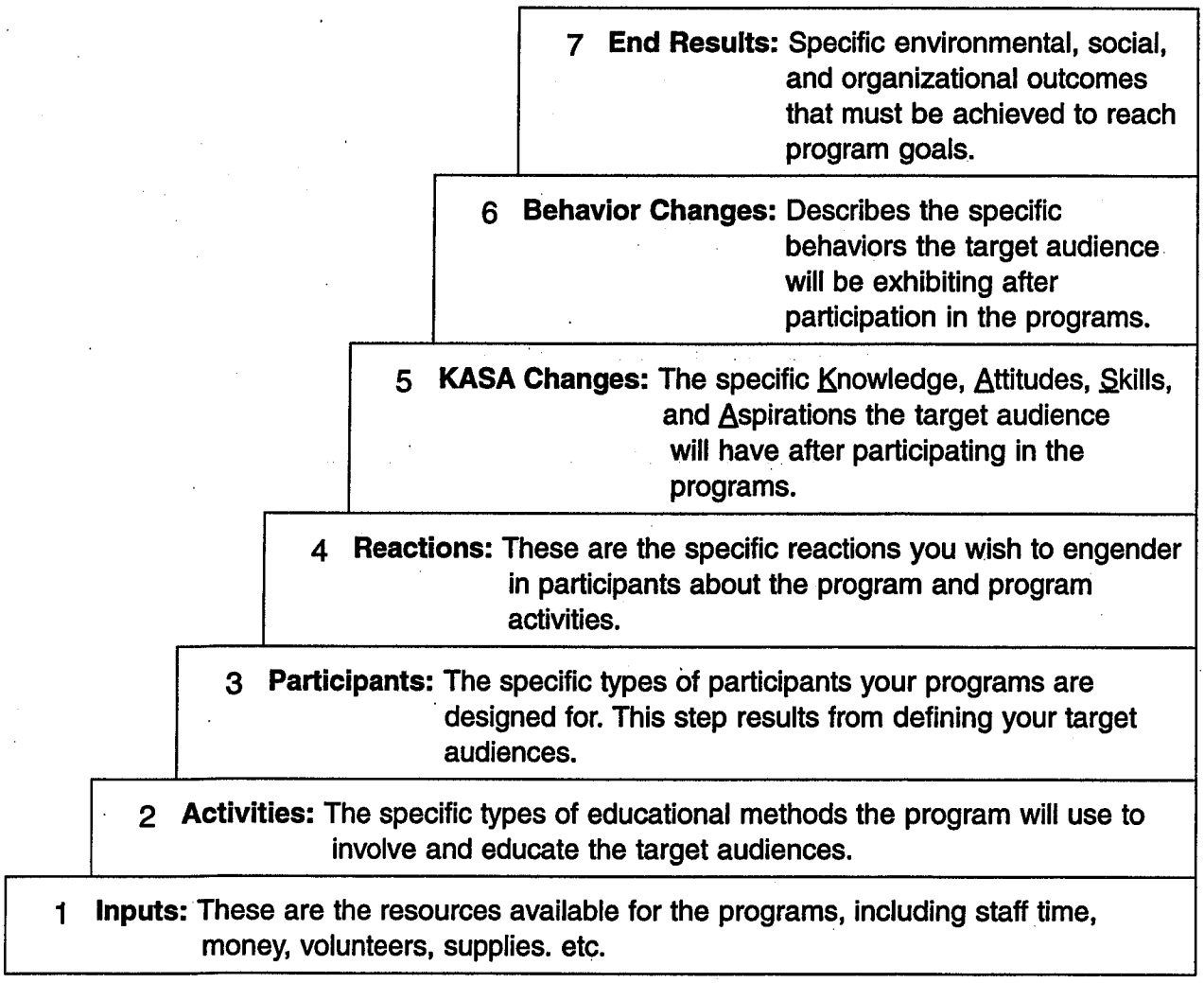
As you work through the worksheets to develop your program strategy, you will be directed to focus on program outcomes. Outcomes describe the conditions that have to exist to enable you to meet your program goals. Used in this way, outcomes are meant to be defined in detail, and provide clear success measures. Outcomes should be developed for all levels of your program, from inputs to end results. Each outcome should be closely tied to a success measure and an evaluation strategy.

Guidelines for Defining Outcomes:

- Describe specific programmatic accomplishments that must be met to reach goals.
- Outcomes should contain completion dates.
- Outcomes should be measurable.
- Relate to evaluation strategies and have associated evaluation method and criteria.
- Prioritize all outcomes.

The Bennett's Model

An effective way to develop an educational strategy is to set specific outcomes that must be met to obtain program goals. This outcome based process is simplified in Bennett's Model. Bennett's Model was developed to evaluate environmental education programs. It is also an effective way to plan your programs; it is simple, yet allows for as much detail as needed. The model is based on a hierarchy of interdependent levels of outcomes, that if accomplished, will lead to achievement of the goals of the program. A brief summary of the steps is provided below. For more information on the Bennett's Model, read pages 16-17 in Ecology's Environmental Education Guide (#92-99).



The following pages are a series of worksheets designed to help you develop program outcomes at each step of the hierarchy. When you have worked through these planning sheets, you will have developed a clear picture of your program and how to determine if it is successful. It is a good idea to check back to earlier steps to assure that your strategy relates closely to your program framework and goals.

LEVEL 7: END RESULTS

Program Goals:

1.

2.

3.

What present environmental condition will your education/outreach programs help correct?

When your education program end results are attained, what specific environmental result will be achieved?

What success measures will you use to determine that end results have been achieved. (How will you know you reached program outcomes?)

How will end results be measured over a long-term period?

What indirect end results could happen as a result of your programs?

LEVEL 6: BEHAVIOR CHANGES

What Behavior changes contribute to the outcomes associated with program goals?

What specific behavior changes do you hope your program will elicit?

Individuals

Groups

How will you know if these behaviors occur (success measures)?

What method will you use to measure behavior changes?

What follow-up activities will be used to determine long-term changes in behaviors?

LEVEL 5: KNOWLEDGE, ATTITUDES, SKILLS, ASPIRATIONS

What specific Changes in Attitude must occur to affect behavior changes?

What Knowledge must audience have to change behaviors?

What Skills will be needed for participants to exhibit desired behaviors?

What specific measures of success will you use to determine if participants acquired the desired:

Attitudes/Awareness:

Knowledge:

Skills:

How will you know if they put the knowledge and skills to use?

LEVEL 4: REACTIONS FROM PARTICIPANTS

What Reactions are important to reaching desired program outcomes?

How do you hope participants will feel about the learning experiences?

How do you hope participants will feel about your programs/agency?

What success measures and tools will you use to evaluate reactions?

Will activity presenters or materials be evaluated? How?

LEVEL 3: TARGETED PARTICIPANTS

Who is the audience for specific projects? *(See p. 10 in EE Guide)*

How many participants are you trying to reach? *(Be specific)*

- # participants at events _____
- # one-on-one contacts _____
- # groups will reach _____

What specific needs does audience have for your programs?

- needs can fulfill

- needs that may conflict

What is the best way to reach your audiences?

- which do they use as most credible information sources?

- what motivates audience?

- who can best deliver your information/message?

- How can you go to them (annual conference, association meetings, shop visits, etc.) instead of asking them to take time to come to you?

LEVEL 2: PROGRAM ACTIVITIES

What activities or events are you planning? *(Check against inputs available)*

How will you involve participants in activities?

When/where will activities occur?

How will success of events be measured?

What external factors will affect the success of activities?

LEVEL 1: INPUTS

What is the total budget available?

How many staff are available for programs?

Will volunteers be used? How will you keep them involved/interested in the program?

What other kinds of resources are needed? (training, materials, supervision, etc.)

What resources can be pooled from other similar programs?

How will you determine cost/benefit analysis?

POTENTIAL SUCCESS MEASURES / OUTCOMES

FOR BENNETT'S 7 LEVELS

END RESULTS:	Environmental monitoring, photo documentation, population count, lab analysis, direct measurement, pollution prevention (emissions to the air bag instead of up the stack).
BEHAVIOR CHANGE:	Observation, follow-up interview, survey, questionnaire, focus group, agreement, ordinance (ie new storm water ordinance), policy or law, contract (pledge), adoption of practice (source control).
KASA:	Written or oral exam, reflective writing, demonstration, standardized test, portfolio, peer review.
REACTIONS:	Questionnaire, observation, media coverage, letters, interview, survey.
PARTICIPATION:	Head counts, sign-in roster, estimate of crowd, ticket sales, # of copies distributed, description of participants, survey, hotline phone calls.
ACTIVITIES:	Timeline (proposed vs actual), milestones, workshops, events.
INPUTS:	Budget documents, expense reports, time sheets, volunteer logs, letters of financial commitment.

Contributed by: Bob Steelquist, Puget Sound Water Quality Authority

PROGRAM SUMMARY MATRIX

Program Outcome	Success Measure (Success looks like . . .)	Evaluation Strategy (Methods)
End Result		
Behavior Changes		
KASA *(Knowledge, Attitude, Skills, Aspirations)*		
Reactions		
Participants		
Activities		
Inputs		

Appendix: Sample Evaluation Reports

PPG Grant Evaluation

Grant No.: TAX 91137
Recipient: Black Hills Audubon Society
Title: "Wastebusters" Model Business Waste Reduction
Sources:
- Grant file
- Interview with Jim Jensen, Sound Resource Management
- Interview with Rob Cole, Black Hills Audubon Society
- Interview with Steve Kirkman, City of Lacey
- Interview with George Feldman, Hawks Prairie Marketplace

Stated Purpose: To provide a model community demonstration project on waste reduction and recycling, using a local government office, a grocery store, and a restaurant as "waste buster" businesses, and to assist the selected businesses in auditing their solid waste practices and implementing a waste reduction and recycling program.

Inputs: Grant funding of $43,820

Activities:

- Canvassed business community to recruit model businesses; conducted waste samplings; prepared list of recommendations for each model business; made presentations to each model business; provided technical assistance; developed informational kiosk; conducted workshop for business community.

- Structured workshop to attract businesses and the general public -- kept it short and scheduled it to accommodate the business day (i.e. restaurant part held in mid-afternoon, when business slows down)

Participation:

- Good response from grocery stores and offices. Restaurants had less favorable response; too busy.

- Usually worked with designated contact person, middle management type; they always had to check to get OK

- Businesses generated ideas and also provided a reality check; they liked seeing the list of recommendations; waste reduction as opposed to waste recycling was a new idea to them; businesses helped develop their WR/R plans.

- Waste Buster businesses participated in workshop and provided good article ideas and case studies. Best attendance was from offices; good from grocery stores, especially Storman's chain; restaurant attendance poor.

- Grocery store model business noted that employees disseminated ideas to their families and their customers. "Snowball" effect.

- Used Ecology video; Ecology staff participated in developing kiosk.

- Black Hills Audubon could not continue kiosk due to lack of staff; did not achieve internal goal of building an active cadre for WR/R education. (Might have been different if original "sparkplug" had stayed.)

Reaction:

- Found businesses willing to consider alternatives; they went through the whole lists of recommendations and decided what they wanted to do for reduction/reuse/enhanced recycling.

- Grocery store had the best reaction.

- Restaurant did some well and some not so well; tried to get more of the food waste separated. It took them a long time to decide, finally convinced them to do it on a trial basis so it could be documented, which gave Sound Resource an opportunity to train employees.

- Good media reaction -- had articles in Olympian, South Sound Business Journal, and the publication of a restaurant association. Workshop and publicity generated inquiries regarding Lacey recycling policy.

- Tried to solicit more ideas and participation by running a contest in the newsletter for the best waste reduction tip, but had no response. Newsletters tend to be one-way communication.

- Project gave Lacey impetus to proceed with developing an in-house administrative policy on recycling. It "forced our hand." Also, when project started janitorial service would not empty both bins; employees had to empty own recyclable paper bin; now janitorial service is emptying both bins in some city buildings.

KASA:

- In grocery store, got people to think of putting in the dumpster only what actually needs to be dumped and to be aware of what can be reused/recycled.

- Restaurant employees did not follow through on food waste composting because they needed more training on composting.

- City of Lacey employees surprised to see how much paper they use.

Practice:

- Office now recycling laser copy cartridges, cardboard, and office paper; using refillable pens and mechanical pencils, and issuing new employees durable coffee cups. One employee is taking household batteries for disposal.

- Grocery store now recycles computer paper, foam deli trays, cardboard, and shrink wrap plastic. Buying recycled content receipt tapes.

- In follow up on implementing, tried to go back and calculate the savings later to show less purchasing (i.e. grocery store signs using both sides meant they bought fewer signs). Some measuring was more of a projection (i.e. restaurant system to compost coffee grounds wasn't followed through; they separated the grounds but weren't actually composting them.)

End Result:

- Model grocery store achieved estimated 20 percent waste reduction.

- Model office increased paper recycling 300 percent (from one 1 1/2-yard to two 3-yard dumpsters picked up 1 1/2 times per week).

Unexpected Outcomes:

- Found that businesses were already doing some reducing and recycling, but just hadn't thought of these actions in that way. They thought of them as "smart business."

- Found there was an informal, undocumented network of grocery stores and restaurants sending food waste to pig farmers. (This is also true in Seattle.) Dept. of Agriculture inspector called to inform of regulations about using food waste for pig feed; could have blocked this effort. Restaurant waste is more of a concern due to meat. Sound Resource was able to interview Agriculture for an article in the newsletter; also got the farmer to cook his pig feed.

- Lacey participation affected by two outside factors: HB 5920 passed about the same time. It requires government offices to recycle and purchase recycled products. (Offices buying less than $500,000/year of supplies exempted) The city had also just started curbside pickup and wanted to follow its own example.

- Six other local governments have contacted Lacey for a copy of their in-house recycling policy.

- Sound Resource used everything they learned in this project in other business projects for Seattle, King Co. and the suburban cities; distributed Waste Buster materials in their information packets

Comments/Hindsights:

WORKING WITH BUSINESSES

- If you're working with businesses, don't just rely on the media to attract participants. You have to actively recruit, out in the field and face to face.

- Restaurants need more "hand holding" than other businesses.

- Some things that interfere with WR/R are beyond the control of the individual business, almost infrastructure items.

- Businesses preferred a "recognition" sign/decal rather than a gauge showing how far they've come in WR/R.

- Working with any kind of business takes time. They need lead time to work things into their business plan. Ecology might consider a longer time frame for evaluation to see if there are longer term results; hard to do a project and evaluate it in the same year, especially if the business needs to get OK from upper management

- It's difficult to get business people to leave their businesses and come to a workshop.

- The savings from WR/R for a smaller business may not be a high enough priority to get them to participate. Think about how to make this part of their mission?

- Make the tasks for the front-line employees as simple as possible. If you make it inconvenient, they won't do it in the press of business.

FROM THE PROJECT

- If you're marketing WR/R in a store, look at what you're competing with in that store for the customer's attention. You only have 2-3 seconds to get their attention for your message. A two-minute video loop works better than a 30 minute video; people won't stand in a grocery store and watch a long tape.

- Didn't have time to do a more statistical/scientific waste stream analysis. Might have had equal result from literature search. Could use this waste stream analysis activity as an educational tool in training managers; business people would probably gain as much from the literature search and a hands on activity.

- Found that ranking recommendations could only be done in the most rudimentary way. Also, publishing the recommendations, with cost/benefit discussion, for each category was too paper intensive. There might be a better way to get that information across.

- It's more important to describe the WR/R hierarchy to businesses as common sense, and give them some examples to do, than describing every little thing they could do. Identify wasted resources and how to deal with that by implementing the waste management hierarchy. Incorporate WR/R as part of business operation and not just a "tag on." You could do a training workshop for the managers of a grocery store chain, tailored to their management structure and style.

- The ability to measure results can depend on the person in charge of recycling; at the Yelm Telephone Company they had measurements to go on because the person in charge of recycling took it seriously and measured things.

- Important to have current mailing list.

- There was no followup to see if workshop attenders changed their habits; suggest having them "sign a pledge." Individualized technical assistance could be used as workshop followup.

- Per city manager, emphasize the public information element; make reaching X amount of people the end goal; especially get information out to businesses.

TIME PERIOD

- All interviewees commented that the project needed to run for more than one year. The grocery store manager suggested a longer period of on-site work as well.

GRANT ADMINISTRATION

- It helps to use a computer spreadsheet for documentation; best to build it off the grant program's forms. Software to fill out the forms would be a big help.

- The review processes for materials, etc. were pretty good. Black Hill Audubon found the documentation requirements relatively easy (compared to The Evergreen State College's).

- Ecology needs to be as specific as we can on what our priorities are; to avoid people wasting time on the applications; get people focused on what we're looking for.

- Sound Resource Management feels they could do some good WR/R I&E, but they can't be funded directly.

"SPARKPLUG"

- This project and the grant application were developed by one person, who left before the award was made. This had a ripple effect on the implementation and administration. Black Hills Audubon found that, in a volunteer organization, the loss of the "sparkplug" can doom the project. They were able to contract the project out, but this meant they did not build support/capacity within their organization. Also, the contractor had some difficulty with the Scope of Work because they were not in on the original project development. They needed more flexibility.

PPG Grant Evaluation

Grant No.: G9200246
Recipient: Clean Air Now
Title: Air Quality Monitoring, Release Mapping, Outreach
Sources:
- Interview with Connor Sauer, Clean Air Now
- Interview with Kim Field, Dept. of Health
- Interview with Brian Jones, ITT Rayonier
- Interview with Joe Williams, Ecology, Air Quality Program

Stated Purpose: Continued investigation and documentation of major hazardous substance releases into the immediate atmosphere of this area; community outreach activities related to air quality

Inputs: Grant funding of $33,600; volunteer hours

Activities: Hotline for air quality complaints; mapping locations and times of complaints; sharing data with Ecology and Health; public meetings to share information and four workshops on air quality issues; newsletter; media campaign to advertise hotline.

Participation: Hotline very busy during mill operating season; calls increased once media campaign made more people aware of hotline; asbestos workshop had highest attendance.

Reaction:

- Public accepted CAN as an air quality authority. They used the hotline and workshops to gain information on industry emissions and on a wider variety of air quality issues (wood smoke, slash burning). CAN found that once people knew they were collecting data for scientific use, they were more willing to call every time they noticed a problem.

- Most citizens supported grant project; Health official heard from citizens at public meeting that someone was finally recognizing their situation. CAN director spoke at many local meetings and on radio talk shows; media began using CAN as a regular source when there was an air quality-related news story.

- At first, ITT Rayonier officials mistrusted CAN's motives. Once they saw the project was being handled fairly, they agreed to participate in the public meetings and through the Port Angeles Air Quality Forum. They also conducted their own odor survey to find out which emission sources cause problems.

- Ecology's Air Quality Program saw CAN's work as valid data collection, done more cheaply than Ecology could do it.

KASA:

- CAN project brought a lot of attention to air quality issues and supported people through information and referrals to further avenues. It accessed and made public past emission release reports, which resulted in some people connecting past problems with those releases.

- CAN project produced another "layer" of data that agencies could use in studying the air quality problem in Port Angeles.

- ITT Rayonier did not realize the extent of the negative impacts its operations were having upon Port Angeles residents. Connor Sauer spoke of her recognition that she was "talking to a different reality," that ITT Rayonier truly didn't believe they were causing health problems. The CAN project, coupled with increased monitoring by Ecology and the health effects study by Health, made them aware of their contribution to the problems.

- Ecology and Health had been aware of the problem for some time, but had not been able to move forward on documenting the exact nature of Port Angeles' air quality. CAN provided large amounts of well-collected data, which gave both agencies the needed impetus to actively pursue the problem.

Practice: Ecology will take the air quality problems and health effects into consideration when developing ITT Rayonier's permit. **ITT Rayonier has already begun altering some of its operations.**

End Result: Health study report to be released in September 1994; new ITT Rayonier permit still being developed; Air Quality Forum established and will continue.

Unexpected Outcomes:

- Every interviewee cited the creation of the Port Angeles Air Quality Forum as a significant and positive outcome of the CAN project. The Forum includes representatives from CAN, ITT Rayonier, Health, Ecology, and local government, who meet regularly to exchange information and discuss air quality issues. The Forum grew out of the recognition by all parties that the data CAN and other agencies were collecting showed that the air quality in Port Angeles was causing real and serious health impacts. The Forum was not part of the CAN project, but the CAN project helped create the situation where all parties were willing to come together.

- Many people who called the hotline wanted their calls returned. This took much more time than originally anticipated. People also began using CAN as an information and referral source for a variety of air quality issues. This seems to be a case of "if you build it, they will come."

Comments/Hindsights:

- All interviewees cited Connor Sauer as a primary reason for the project's success. They spoke of her fairness, ability to deal with difficult/hostile parties, and commitment to a long-term vision rather than a short-term cause. Sauer feels her experience and training as a therapist helped this a great deal, but she places more value on her recognition that the goal had to be the broader, long-term "vision" of the kind of life people wanted for their future, rather than the more narrowly-focused "cause" of addressing one problem. If you have only a cause, it becomes a mechanical exercise; if you have a vision you get people involved.

- Figuring out the budget and tasks is hard if you're creating a new type of project, but it's a helpful discipline to go through. Present the budget and task determination as a map rather than a box, that it will help recipients structure their project rather than something that has to be done just to meet Ecology criteria.

- Groups should include someone experienced in budget and accounting. CAN found it easier to divide up the tasks so each person could concentrate on their task; they also designated one person everyone in the group was comfortable with to serve as spokesperson. That way they made sure they could be comfortable with the presentations.

- Health official stressed including local health department "in the loop" on projects like this. They live in the community and have the connections.

- ITT Rayonier official cautioned that Ecology should be very careful that the group's agenda is what they say it is. He did not see the grant for CAN's project as money put into the community for community awareness. This may reflect a misunderstanding on his part of the purpose of the Public Participation Grant program.

- Air Quality Program official noted that once you get into situations where the public is concerned about a possible health risk, it can be difficult for the agency to extract itself. You need to set closure or people will want the investigation to go on until you get the answer they want.

SAMPLE EVALUATION REPORT SUMMARY

I. INTRODUCTION

- One paragraph description of the project, including:
  - What took place
  - Why agency sponsored the event
  - Who attended
  - How many attended

II. GOALS OF THE PROJECT

- Major Goals/Objectives of the Project
- How this fits into Waste Educational Programs
- How Project helps meet Agency Goals

III. SUMMARY OF EVALUATION

- Brief Summary of Successes of the Project
- Use Success Measures; Highlight Where Met or Exceeded Expectations
- Provide "Cost/Benefit" Statement

IV. SUMMARY OF RECOMMENDATIONS

- Continue/Discontinue Project
- Policy Decisions to be Made as Result of Evaluation
- What is Needed to Make Project More Successful in Future
- Recommendations for Changes in Project Design (for areas where did not meet success measures)

V. SUMMARY MATRIX OF PROJECT OUTCOMES/EVALUATION MEASURES

INTRODUCTION

Four one-day workshops were held for hazardous waste generators during January and February of 1993; a total of 377 generators attended the four workshops. The workshops were designed to train small and medium quantity generators how to comply with basic hazardous waste regulations. These workshops piloted both a new training approach and the concept of charging a fee to cover the cost of this type of technical assistance. Free technical assistance was available for completing annual reports.

WORKSHOP GOALS

Goals for the workshops were established based on SHW program goals of to increasing compliance through technical assistance and building partnerships.

- Increasing voluntary compliance with the hazardous waste regulations by providing SQGs and MQGs with practical, site specific information on how to comply with basic waste management regulations.

- Create understanding among regulated community that Ecology SHW Program is committed to providing technical assistance and building partnerships for effective waste management.

EVALUATION RESPONSES

The workshops were extremely successful. Not only were workshop goals were met, but success measures of a receiving a 65% positive response rate was greatly exceeded. The following is a highlight of the evaluation responses. A complete summary of responses to the evaluation questionnaires is included in attachment A.

- The workshop met the goal of providing practical information; 87% of the respondents rated content usefulness at a 4 or above on a scale of one to five. Participants indicated a desire for more in-depth information at future workshops.

- The workshops met the goal of creating an understanding that SHW Program is committed to providing technical assistance; 90% of the participants indicated that instructors were interested in participants needs and the interaction was positive.

- One of the highest reported positive aspects of the workshops was the opportunity to interact with Ecology inspectors in a non-threatening environment.

RECOMMENDATIONS FOR FUTURE WORKSHOPS

The following recommendations are made based on participant responses to the evaluation survey, as well as lessons learned in planning and conducting the workshops. A post-workshop staff briefing session was held to review participant responses and develop recommendations; a more in-depth summary of staff suggestions is included as attachment B.

- Continue workshops on an annual or biannual frequency. Also provide short courses on new regulatory developments, include workshops in all new major regulatory development project plans.

- Continued involvement of hazardous waste inspectors as presenters is integral to workshop success. To effectively involve inspectors in future the program should: include workshops in the SHW program plan as a milestone; substitute workshops for a "state bean" to allow inspectors sufficient time for preparation and follow-up; provide training for inspectors who wish to become more involved in workshop presentation.

- Evaluate the effectiveness of workshop participation as a means of changing on-site waste management practices. Schedule time for follow-up site visits three to six weeks after the workshops. This will allow surveying participants to evaluate how well generators apply what they learned at workshops, as well as discern barriers to compliance that may be incorporated into future workshop topics.

EVALUATION REPORT

1993 HAZARDOUS WASTE GENERATOR WORKSHOPS

DEPARTMENT OF ECOLOGY
SOLID AND HAZARDOUS WASTE PROGRAM
SOUTHWEST REGIONAL OFFICE

April 1993
Peggy Britt

INTRODUCTION

Four one-day workshops were held for hazardous waste generators during January and February of 1993; a total of 377 generators attended the four workshops. The workshops were designed to train small and medium quantity generators how to comply with basic hazardous waste regulations. These workshops piloted both a new training approach and the concept of charging a fee to cover the cost of this type of technical assistance. Free technical assistance was available for completing annual reports.

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- Create understanding among regulated community that Ecology SHW Program is committed to providing technical assistance and building partnerships for effective waste management.

- Correct the most frequently seen compliance problems by focusing workshop sessions on how to comply with the corresponding regulations.

EVALUATION RESPONSES

The workshops were extremely successful. Not only were workshop goals were met, but success measures of a receiving a 65% positive response rate was greatly exceeded. The following is a highlight of the evaluation responses. A complete summary of responses to the evaluation questionnaires is included in attachment A.

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- The workshops met the goal of creating an understanding that SHW Program is committed to providing technical assistance; 90% of the participants indicated that instructors were interested in participants needs and the interaction was positive.

- 90% of survey respondents gave the workshops an overall rating of 4 or 5 on a scale of one to five. 95% would be willing to pay for similar workshops in the future, and 99% would recommend the workshop to a co-worker.

- One of the highest reported positive aspects of the workshops was the opportunity to interact with Ecology inspectors in a non-threatening environment.

RECOMMENDATIONS FOR FUTURE WORKSHOPS

The following recommendations are made based on participant responses to the evaluation survey, as well as lessons learned in planning and conducting the workshops. A post-workshop staff briefing session was held to review participant responses and develop recommendations; a more in-depth summary of staff suggestions is included as attachment B.

- Continue workshops on an annual or biannual frequency. Also provide short courses on new regulatory developments, include workshops in all new major regulatory development project plans.

- Continued involvement of hazardous waste inspectors as presenters is integral to workshop success. To effectively involve inspectors in future the program should: include workshops in the SHW program plan as a milestone; substitute workshops for a "state bean" to allow inspectors sufficient time for preparation and follow-up; provide training for inspectors who wish to become more involved in workshop presentation.

- Provide support for workshops in the form of assistance with logistics and advertising, and dedicated clerical staff.

- Update workshop agendas and materials to provide a more in-depth learning experience. Specific suggestions include: cover less information but in more detail, lengthen each workshop session; keep workshop sessions small, preferably 25-30 participants per session. Holding workshops more often will decrease the pressure to overbook the sessions.

- Evaluate the effectiveness of workshop participation as a means of changing on-site waste management practices. Schedule time for follow-up site visits three to six weeks after the workshops. This will allow surveying participants to evaluate how well generators apply what they learned at workshops, as well as discern barriers to compliance that may be incorporated into future workshop topics.

ATTACHMENT A
SUMMARY OF EVALUATION RESPONSES

Evaluations were exchanged for training completion certificates, resulting in a high rate of return of 78%. There was no significant difference between the evaluations from different workshops. This attachment provides a compilation of participant survey responses. The responses are organized in the same format as the participant questionnaire.

On a Scale of 1 (lowest) to 5 (highest), how would you rate the following?

		High				Low
		5	4	3	2	1
Knowledge of Instructors	123	140	18	1	0	
Instructors' Interest in Audience	136	120	22	3	0	
Usefulness of Content		104	140	36	1	1
Usefulness of Materials		114	123	36	2	0
Facility		75	108	67	33	9
Overall Workshop		96	155	30	1	0

What did you like <u>most</u> about the workshop?

<u>Content</u>

Good Information (138)
- Applicable to participant needs/helps meet requirements
- Common sense emphasis
- Opportunity to have questions answered
- Roundtable Discussion
- Good broad overview
- Info on local programs

Interaction with Inspectors (21)
- Found resources for future questions
- Being able to talk to regulators in non-threatening atmosphere

Handouts (35)
- Salmon/white cards a good idea
- Resource list is good idea

Good Use of Visuals (2)

Presenters

Knowledge of Ecology Speakers (11)
Attitude of Speakers (40)
- Clearly interested in audience needs
- Eager to help/friendly
- Education rather than "slamming" attitude

Format

Organized Effectively (6)
Liked Variety of Sessions and having Choice (18)
Good Length (3)

Miscellaneous

SWRO should be commended for taking the initiative
Pat Lee added tremendously with his style and delivery
Good Price
Lunch (3)

What did you like least about the workshop?

Content

Not enough Depth (199)
- Geared only for beginners
- Not Industry Specific
- Lack of Specific examples
- Too basic

Too much Information for time (14)
- Sessions rushed
- Too much to absorb

Content not specific to needs (10)
- Some information too complicated
- Incomplete regulations
- Lack of Recycle Info
- Not enough site specific information

Handouts/Materials (12)
- Not well organized
- Use of Visuals Poor
- Outlines not sufficient

Facility

Offer vegetarian lunches

Better Facility (6)
- sound system
- Better lighting
- Non Smoking

Better refreshments (4)

Miscellaneous

Have More often (13)
Better publicity (3)

Would you recommend this course to a co-worker or business associate?

285 **YES** 2 **NO**

In the past Ecology has not offered this level of workshop due to the cost of renting facilities, etc. Do you think charging a small fee to enable Ecology to offer full day workshops is appropriate?

278 **YES** 14 **NO**, Do not offer workshops unless they are free.

Presenters

Knowledge of Ecology Presenters (2)
- Did not understand problems of trying to comply
- Some not as knowledgeable as others

Attitude of Presenters (7)
- Spoke like bureaucrats/too much jargon
- Talked "at" businesses
- Did not follow time constraints
- Arrogant demenaor of Pat Lee

Format

Could not attend all sessions (41)
Classes sizes too large (4)
Too long (5)
Not interactive enough
Outline did not follow presentation

Facility

Facility too small (13)
Facility uncomfortable (32)
- Chairs/hard to hear
- Cold/Dark/Smoking allowed
- Not enough types of refreshments

What changes would you suggest for future workshops?

Content

Make Sessions more in-depth (17)
- Make sessions longer to go in more depth
- Address most frequently asked ?s
- Use same waste streams as examples in all sessions
- Shorten opening/closing remarks
- more examples

Make more interactive (15)
- include displays
- more time for Q/A
- mock inspection at a real site

More Industry Specific (19)
- More specific examples
- separate sessions for different industries

Different Session for SQG, MQG, LGQ (5)
Have beginners and advanced classes (6)
Better explanations of abbreviations/tech. info (3)

Better Handouts (11)
- Use salmon/white cards throughout
- Have handouts and presentations match better
- Number pages in handout
- Include publications list/order form

Presenters

Better prepared to answer ?s
Make sure presenters more sure about regulations
Provide Training for Presenters
- Toastmasters

Format

Schedule so can go to all sessions (20)

Provide more time (35)
- Do same workshop over 2 days
- Have short (1/2 day) seminars on specific topics
- Have in evening so does not interrupt small business
- Fewer topics, more time for each (keep it one day)
- Shorter days

Provide more information (2)
- Form 5
- SARA Title 3
- Other Agencies/programs

Better Class Sizes (14)
- *Smaller Sessions
- Bigger facility

Include vendor fair (4)
Include other state agencies/EPA (2)

ATTACHMENT B
SUMMARY OF STAFF EVALUATION MEETING

After the four workshops were completed, all staff that were involved in the preparation and presentation of the workshops met to debrief, review participant reactions, and discuss the merit of the pilot workshops.

Overall, staff felt the workshops were a very positive experience for the participants and the presenters. The general recommendation was to repeat the workshops on an continuing basis, with specific suggestions for improvement.

The summary below is a compilation of all the ideas that came out of the brainstorm session. These ideas were further discussed and used to formulate the final recommendations included in the body of the evaluation report.

INTERNAL EVALUATION AND IDEAS

Need Management Full Support and Approval

Shift project deadlines and priorities to allow for workshop efforts.
-Clarify support from management for utilizing "Reception" and the "Word Processing" department.
-Improve communication between supervisors and staff.
-Estimate time required for both this workshop and future workshops. Include (hours required) as line items in program plan. [Presenters may require about 3 full weeks to prepare and give the sessions. Organizing time required may be about 240 hours? Support people would need to plan for about 8 days for 4 full day workshops. Word processing and secretarial...?]
-Support the Staff if they require training on how to give presentations. Establish a separate training budget for that purpose. (Since this is currently not a requirement of an inspector's CQ, it is not part of the training budget and should not count against that allowed for professional (inspector) oriented training.)

Workshop Staff - Presenters and Support People

-Ensure that people are fully aware of what they are taking on when they agree to help out with the workshops (and that they understand the true level of involvement necessary!).
-Assign responsibility for some of the jobs; use a sign-up sheet for other jobs to give people more of a choice.
-Be clear on who has approval/authority for which decisions.
-Someone asked if 'line' Inspectors are really the people who should be teaching these sessions. Some felt that it is an important role - another way of being face-to-face with staff of regulated sites. If so, then being a trainer should be a part of each inspectors CQ. Jay shared a new idea about possibly having a team of the New Notifiers from each region (along with an additional backup New Notifier from each region - therefore 8 people) travel around the state to do these workshops. Regional staff could still attend and support each seminar in their own regions. More cost efficient?

General Ideas...

-Restate the goal of the workshops. Continue looking for creative ways to achieve that goal!
-Regarding the evaluation of new ideas: State our criticisms or reactions in positive / constructive ways. Immediate "squelching" of new ideas often results in the death of creative thinking (and it is often the new ideas that bring about improvements). Also, once an idea has been approved for use, present a "united front" to the outside world (even if we don't agree). We should think of ourselves as a "team" - not fighting or competing amongst each other!
-Offer "friendly" follow-up calls to the attendees to see how they are doing, what they need help with, etc.
-Develop a meaningful way to compare the number of generators covered during these workshops vs. those that can be visited or inspected in a year (with the same number of staff and time spent).
Perform a "cost-volume" analysis to take a closer look at the finances and fees (Emmanual offered).
-Hold an Ecology workshop with all programs.
-Hold "industry specific" workshops.
-Get Flu shots!!!

Organization

-Plan earlier and also notify earlier for future workshops (possibly need to decide by June of this year if we will commit to a similar effort for 1994).
-Look at possibly reordering the sequence of sessions. One idea was to

cut some areas out (or shorten them). Another was to plan the sequence in an order that would serve the SQG's first in the AM, with the MQG's et al continuing on for further sessions that would not be of interest to SQG's (so: Designation, HW Handling, Paperwork would be the first classes). Another idea was to have a special session for SQG's the evening before the full day seminar - or maybe even the week before. Maybe an additional late session could be added on for TSD and other unique LQG issues (tanks PBR etc.).
-Create notebooks for future use containing all info (everything from "session scripts" to lists of steps on how to produce brochures...) so that we learn from this experience and continue to build on it.
-Maintain a posted checklist of the status of jobs with continuous updates (during the period of "workshop preparation").

Pre-test

-At this time, there has been no further discussion regarding this issue.

Survey

-Get to know our audience before the actual workshop?... Most felt that it might be good if we knew the industry types that were there and what size generator they were (SQG, MQG, LQG).

Workshop Folder (the handouts)

-Needs more work. Number the pages! Where it is reasonable, include copies of the overheads. Make it as user-friendly as possible.
-Have sections include an outline of material to be presented.

Signs and Posters

-Produce professional-looking permanent signs and posters.
-Look at possibilities for other sessions to include visuals (especially a brief outline or key points).

Opener

-Brainstorm for more ideas. We still may need something unique and creative as an opening for a *full day* seminar!

Lunch

-Maybe allow more time for RTD's?

Sessions / Session Content

-Have them tie in with some overall workshop outline. Reuse the same 35mm slide throughout the program to point out a common theme that needs emphasis?
-Some of them may need to be longer (Designation, CM...).
-Develop ideas for interactive exercises.
-Use more examples and case studies in presentations and handouts.
-The following were seen as the most important sessions
a. Designation b. Container Management c. Paperwork
-Include more practical "how-to" and examples in the WRRLC and Recycle sessions. Could be industry specific and on a separate day or block of time.
-Include information on Tier 2 Reporting in a handout rather that in a presentation.

Close

-Close with panel of all participants.
-Develop something more lively or interactive.

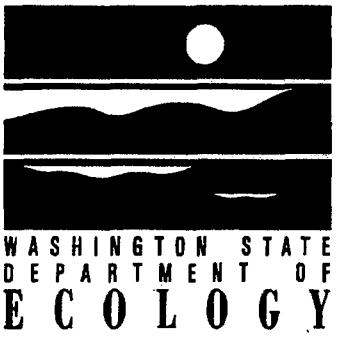
Evaluations

-Regarding this workshop's evaluations - analyze what they shared and tabulate results somehow. What could we learn from them and how might they change the next series of workshops? Perhaps take another look at previous evaluations.
-Perhaps ask for evaluations after every session - at least verbally ask them what could have helped them more, or what they liked and disliked about that session. Get useable information!
-Set up for possible entry into simple database that could do basic statistical analysis.

INFORMATION GATHERED FROM THE SHOPSWEEPS FOLLOW UP SITE VISITS

(based on revisits to a random statewide sample of 5%)

- 82% of shops had complied with at least one recommendation made by an inspector during the shopsweeps.
- 15% of shops had tried, or were in the process of complying, with at least one shopsweep recommendation.
- **97% of all shops visited complied, or had tried to comply, with at least one of the recommendations made by an inspector during a shopsweep visit.**
- In 3% of the shops, no attempt had been made to comply at all.
- 61% of original shopsweep recommendations issued by inspectors had been complied with by shops.
- Some attempt to comply had been done in 25% of the recommemdations by inspectors.
- In 14% of the recommendations, no attempt at compliance had been made.
- **82% had kept the informational materials given to them during the original shopsweep visit.**
- On a scale of 1-5, with 1 being the highest rating, 59% of the shops rated the shopsweep visits a 1, 22% rated the visits a 2 and 15% rated the visits a 3. There were no ratings of 4 and 5% of the shops rated the visits a 5.
- Of the shops that have recieved a hazardous waste inspection before, by any entity, 67% felt the shopsweeps visits were more effective in acheiving compliance.



SUMMARY REPORT

AUTOMOTIVE "SHOP SWEEP" CAMPAIGN

Hazardous Waste and Toxics Reduction Program
Olympia, Washington

Publication No. 94-05
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Reduce Waste

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PREFACE

This report is a summary of the historical perspective, data findings, and initial conclusions and recommendations of Ecology's automotive shop sweep campaign. It is designed to be a reference tool for Ecology staff, local governments, other state governments and interested businesses and citizens.

Some campaign follow-up projects are ongoing; when completed, their results will be reported in a brief attachment to this summary report.

INTRODUCTION

"Shop sweeps", short assistance visits made to over 1,700 automotive repair shops in Washington state, were the heart of an innovative targeted-industry effort by the Washington State Department of Ecology's Solid and Hazarouds Waste Program and Waste Reduction, Recycling and Litter Control Program.

This report describes the implementation procedures and findings for Ecology's automotive shop sweep campaign. The campaign has several unique attributes that make it a model for future regulatory compliance strategies and waste reduction education, including:

1. **Consensus and cooperative based approach.** Including the regulated community throughout the development of the campaign lead to a more realistic, practical program with a much higher chance for success.

2. **Positive incentives and technical assistance used to maximize environmental goals.** Technical outreach is a more appropriate approach to address small businesses (commercial as opposed to industrial) who often possess the same limited knowledge of the problems, regulations, and solutions as the general public, yet lack the resources (e.g., time, staff, consultants) to help themselves come into compliance.

3. **Emphasis on on-site visits instead of relying on work shops, brochures, or other media.** The visits allowed Ecology and local government field staff to talk with, not at the regulated community. One-on-one discussions provided specific answers to specific problems.

4. **"Visits" instead of inspections.** On-site visits were conducted with education and technical assistance in mind before regulatory enforcement. In this non-threatening, cooperative atmosphere, businesses were more forthright in identifying and discussing their problems, and more receptive to solutions offered.

5. **Visits were streamlined to allow greater coverage.** Average inspection time for a conventional hazardous waste inspection, including preparation and follow-up time, averages close to 60 hours. Shop sweeps, incorporating a short checklist and pre-made educational materials, cut visits to an average of 45 minutes on-site, allowing a greater number of businesses to be visited.

6. **Training/coordination opportunities highlighted between state and local governments.** Interaction between the Department of Ecology and local government hazardous waste programs helped both groups learn how to best exchange information about small quantity generators (local government responsibility) and regulated generators (state responsibility), and provided a training ground for many newer local government field staff.

PROGRAM GOAL AND APPROACH

The goal of the shop sweep campaign was to improve the quality of human health and the environment by:

- helping the Department of Ecology and local governments understand the complexities involved in the day-to-day management of automotive hazardous wastes;
- helping the automotive repair industry better understand and voluntarily comply with hazardous waste requirements; and
- promoting waste reduction and recycling as a compliance and environmental quality tool.

The automotive repair industry was selected as the pilot industry for the campaign for a number of reasons:

- the sheer number of automotive repair businesses and operations in Washington state (at least 10,000);
- the number of potential hazardous wastes (around 30); and
- the volume of hazardous wastes generated annually statewide (numbers below based on tabulated shop sweeps data and conservative estimates of automotive repair businesses statewide):
    - 1.2 million gallons of used antifreeze,
    - one million used fuel filters,
    - 35 tons of used lead solder,
    - 4,000 55-gallon drums of used paint thinners and solvents,
    - 1.3 million aerosol spray cans used for lubrication and degreasing.

What made this approach unique? On one hand, nothing really. Most of the work that hazardous waste inspectors do on a regular basis in Washington, even during conventional compliance inspections, is to provide technical assistance and advice to help businesses solve their hazardous waste management problems. Helping hazardous waste generators has been, and will continue to be, a top priority for hazardous waste inspectors.

On the other hand, however, the design and implementation of the shop sweeps campaign was different. Ecology began by approaching key automotive trade associations with the idea of providing fair, efficient service in exchange for increased compliance and cooperation from the industry. The end result was a partnership that resulted in numerous on-site visits that were short, basic, and to-the-point, and the dissemination of easy-to-read educational materials designed specifically for a variety of auto shop specialties.

The approach streamlined the conventional hazardous waste inspection to allow a greater number of on-site visits in a non-threatening atmosphere. This was accomplished through development of a short inspection checklist that included only the essential elements of the hazardous waste requirements, as well as pre-made education packets that were left with each shop. Ecology concentrated on the more common waste management problems (that probably represent 90 percent of overall management concerns), while sacrificing the remaining 10 percent of the time-consuming and difficult waste management problems for later consideration. Because visits were short, more businesses were able to be visited -- a start at creating a fairer, more level playing field for the automotive repair industry.

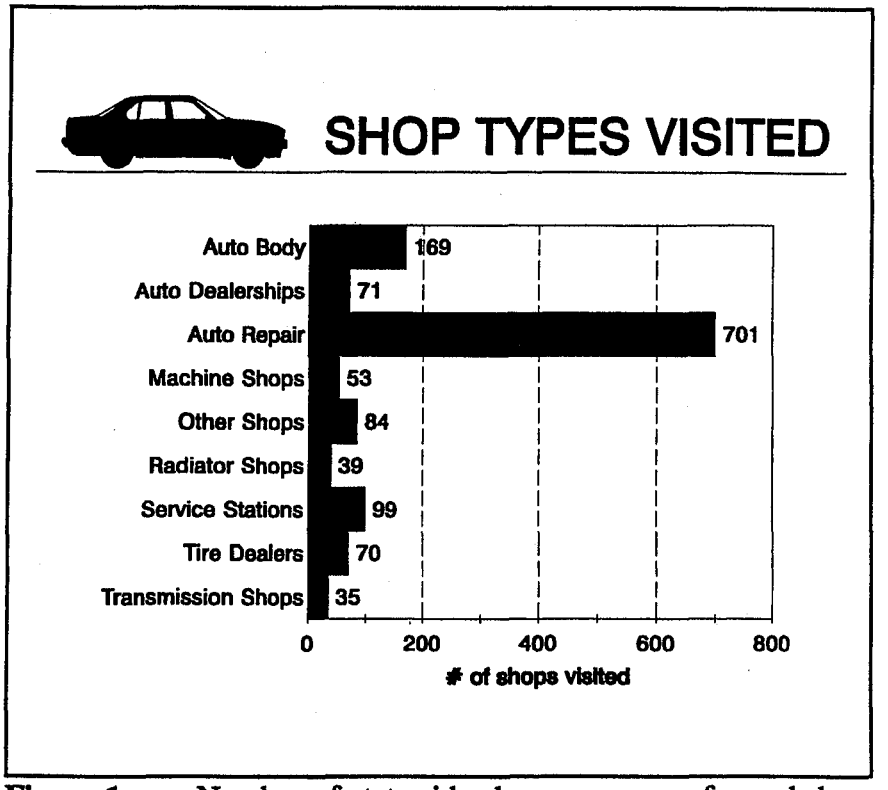

Figure 1 Number of statewide shop sweeps performed, by business type.

Team Approach

The shop sweeps campaign was a combined effort of the Department of Ecology, automotive associations and businesses, and local governments in Washington state. Associations and individual business helped supply valuable input on the subtle ins-and-outs of the repair industry and the day-to-day realities of trying to run a legitimate businesses. These industry representatives also helped create and finance the educational booklets that were handed out, and advertised the shop sweep visits through their association newsletters. Many county and city governments around the state, as part of their small quantity generator hazardous waste programs, joined in the sweep effort. Such interaction between the Department of Ecology and local governments helped both groups learn how to better exchange information about their respective waste programs.

Shops Visited

The shop sweep campaign began in January 1992 and directly educated over 1,700 shops by way of personal on-site visits (see Figure 1, above). Most of these visits occurred during a

three month period in Fall 1992, with an additional round of over 300 sweeps occurring in the Spokane area during Summer 1993. The Metro/King County hazardous waste program alone visited over 300 auto repair shops. Thousands more received coinciding education via direct mailing, press releases, automotive association newsletters, word-of-mouth, and other media. Follow-up efforts continue as of January 1994.

WORKPLAN ELEMENTS: SUMMARY OF CAMPAIGN STEPS

Below is a discussion of the major workplan elements which made up the shop sweep campaign. It is intended to provide readers with a step-by-step snapshot of the basic framework of the campaign, along with some key considerations within each element. Other state and local governments may find it useful as a general recipe for undertaking a similar project.

1. **Receive initial staff input and management support.** Does the idea have merit? Does it have support from both the grassroots and management level within your agency? Such support is critical up front in order to ensure success.

2. **Approach industry associations and form a workgroup.** If the goal is to truly understand the regulatory and waste reduction concerns of an industry, a working group of key players within the industry must be formed. The shop sweeps campaign created a core working team of Ecology staff and nine key automotive associations within the state. This core group worked together with other interested parties to accomplish project goals.

   Ecology intentionally created a core workgroup of the two main participants (Ecology and the automotive repair industry) in order to streamline decision-making. Other interested parties, such as local government, participated as needed during the campaign. This approach resulted in quick decisions and results but caused some concern among other interested parties that they weren't fully included in the process/project.

3. **Define the range of businesses to be targeted.** When targeting an entire industry it is likely that the number of businesses will greatly outnumber the agency staff time available to address all their needs. To minimize this, it is important to limit the range of businesses to those deemed most important. For the shop sweeps campaign, we decided to concentrate on the following areas within the general automotive repair industry: auto body, auto dealerships, auto repair, machine shops, radiator shops, service stations, tire dealers, and transmission shops.

4. **Compile site location and mailing lists for target businesses.** Once subcategories within an industry have been decided, compiling site location and mailing lists of these businesses is crucial. The shop sweeps utilized a "non-notifier" location list provided by EPA's National Enforcement Investigations Center in Denver, Colorado. The data contained in the list of potential RCRA non-notifiers was generated by a

comparison of the Duns Market Identifiers and the Resource Conservation Recovery Information System. This list served as a good starting point for locating shops for visits, but it was not very accurate. Other methods for locating businesses includes telephone books yellow pages, association lists, vendor lists, mailing list services, and other lists already developed by other governments agencies (such as local governments, Department of Revenue, etc.).

5. **Answer the question "What is preventing this industry from complying with the regulations and reducing/recycling their wastes?"** Convene workgroup and conduct research within the industry to determine:

   - regulatory barriers to waste reduction and recycling,
   - waste/pollution problems,
   - practical pollution prevention options,
   - technical assistance needs, and
   - industry motivations.

   Don't be limited by traditional regulatory constraints, such as mandated federal requirements, if these constraints prohibit reasonable or common-sense solutions. Bypass such constraints through alternative routes such as pilot or demonstration projects.

6. **Build in evaluation steps to measure campaign success.** Ecology conducted informal interviews with staff, businesses, and local government following the shop sweeps. According to Ecology staff, some of the best aspects of the campaign were increased personal contact with businesses, the fact that generators liked the educational shop sweeps approach, and that the shop sweeps fostered a sense of community because of their widespread nature. Formal evaluation findings will be reported in a brief attachment to the *Summary Report* upon completion of the follow-up phase. In addition, formal follow-up letters and re-visits to a random sample of previously visited shops are planned (see #13 below).

7. **Work with the media to foster a positive response to the campaign.** Using press releases, articles in automotive association newsletters, word of mouth through key industry representatives, and other media, a positive atmosphere was created in which to conduct the campaign. This was crucial in light of the regulatory overtones of the campaign and the natural reluctance and fear of businesses toward hazardous waste regulations and environmental matters. Many shops expected to receive a visit or at least knew the basic goals of the campaign

8. **Establish links with local governments in Washington state.** Ecology delegates responsibility for small quantity generators to local governments in the state while Ecology staff focus on medium to large quantity generators. Interaction between Ecology and local governments during the shop sweeps campaign helped both groups learn how to better exchange information about generators within their respective programs and provided a training ground for many newer local government field staff.

9. **Create on-site checklist and business-specific educational materials.** Two key education tools were used during the on-site visits: a two-page checklist and a packet of written materials. Checklists and booklets were developed with help from Ecology, local government staff, and automotive associations and business. The success of the booklets rests largely with the effort of the automotive repair industry, which allowed Ecology unlimited access to their shop practices so that we could gather firsthand knowledge, useful insights, and learn the language and realities of what goes on in a typical repair shop.

   The checklist was designed to collect data from a statewide sample of repair shops on the types, amounts and ultimate management of wastestreams (see attachment A for a sample checklist) while the packets included specially-designed booklets for various repair specialties, a "Top 10 tips to hazardous waste success", and other appropriate written materials. Multiple copies of each checklist were created. The following entities each received a copy:

   - the business being visited,
   - Ecology's headquarters staff (for entry into the database),
   - the appropriate Ecology regional office, and
   - the local government small quantity generator program appropriate to the business location.

10. **Enter information gathered from shop sweep visits into a database.** After the sweeps were completed, the data collected from the checklists was entered into a database at Ecology headquarters in Lacey, Washington. The goal of the database is to provide a tool for ongoing use by Ecology staff, local governments, businesses and the general public.

    Database queries may be requested by contacting Darin Rice of Ecology's Hazardous Waste & Toxics Reduction Program at (206) 407-6743. For a description of query categories and samples, see page 16.

    Database development includes tradeoffs between easy field use of the data collection tool (the checklist) versus easy data entry. Although the shop sweeps checklist was

easy to use in the field, the hours required for data entry were greatly underestimated. Future targeted industry projects should consider developing a field checklist that allows for a more automated approach to data entry, such as "fill in the bubble" answers that can be computer scanned.

11. **Perform shop sweep visits.** The essence of the shop sweeps was to say: "Your shop generates hazardous wastes. This is what they are and what you're doing right and wrong with them. Here's how to fix what you're doing wrong. Take this booklet and information packet as a reference tool. We may be back to check on your progress."

    Perhaps the most important aspect of the shop sweep visits was their ability to help establish a widescale compliance education presence through large numbers of personal on-site visits, allowing shops to ask questions and receive answers from the regulators themselves. Shops were left with a "to do" list of items that would improve their waste management, recycling and reduction. Providing compliance information in an education format provided a nice combination of motivation and comfort for shops.

    Despite the large number completed, shop sweeps did not require additional Ecology staff. Instead, Ecology field staff resources were redirected during this time period to accommodate the sweeps, with inspectors from both Ecology and local government averaging over 20 visits per day for three months.

12. **Anticipate increased workload.** Systematically contacting large numbers of businesses creates a potential for increased staff workloads in terms of more phone calls, requests for documents, more hazardous waste generators requesting a state\EPA I.D. numbers and entering the state hazardous waste management system. While such workload increases are difficult to trace back to a particular source, it does not appear that any substantial increase in staff workload occurred as a direct result of the shop sweeps, short of performing the shop sweeps themselves.

13. **Determine campaign effectiveness and long-term follow-up needs for the industry.** Evaluation is being done on both a formal and informal basis. Ecology staff have evaluated the campaign, as have some participating local governments. Some questions asked of staff include:

    - What was the best aspect of the auto campaign?
    - What was the worst aspect of the auto campaign?
    - If you could change one thing about the overall campaign, what would it be?
    - Should we do a similar single-industry campaign again? What industry would be most appropriate?

- If you could pursue only one automotive follow up item, what would it be?

Summarized results of this informal staff survey are found in the Conclusions and Recommendations section beginning on page 18.

In addition, campaign effectiveness is being evaulated through several ongoing follow-up efforts. These include:

- **Results Article and Letter.** A summary article to appear in major automotive association newsletters, advising shops of problem areas that inspectors will focus on during any future visits. A similar letter will be sent to shops that received visits, thanking them for their participation.

- **Follow-up Shop Survey.** A phone survey to shops in the Spokane area will assess their view of the effectiveness of the shop sweep approach.

- **Evaluation Re-visits.** Ecology's hazardous waste field staff will revisit five percent of previously visited shops to evaluate compliance aspects of the sweep visits (i.e. the "to do" lists), and ask shop owners a small set of questions about the effectiveness of the shop sweep approach.

- **Enforcement Follow-up to Significant Problems.** Ecology's hazardous waste field staff will perform a limited number of enforcement follow-ups to shops with established poor waste management records that have not taken steps to correct their waste management problems. Enforcement follow-up was an item agreed to by the auto repair industry. This was viewed as a way to help minimize the competitive advantage gained by shops that don't pay the costs of proper waste management.

- **Floor Drain Strategy/Agreement.** As a result of the shop sweep findings, Ecology will devise a cross-program strategy or agreement in response to floor drains found in repair shops Of particular concern are drains that are not connected to a sanitary sewer, such as dry wells, storm drains and septic system drains. These may be the source of historical improper disposal of hazardous waste.

  Ecology's Hazardous Waste and Toxics Reduction program will meet with representatives of Ecology's Toxics Cleanup and Water Quality programs to develop an agency approach to dealing with these floor drains in a way that makes common sense for our programs and affected businesses. The answer probably lies in developing a set of best management practices that shops can follow to assess the degree of current contamination, take reasonable steps to clean up contaminated areas, and stop any future damage by closing off the drain.

- **Waste Testing.** Some waste streams that have not had clear cut regulatory answers will be sampled, tested and best management practices developed for management of

these wastes. Candidate waste streams include used brake fluid, used fuel filters and used propylene glycol-based antifreeze.

- **Antifreeze Pilot Project.** Ecology has developed a pilot program which allows generators who recycle used antifreeze and follow specified best management practices to discontinue "counting" used antifreeze toward their monthly hazardous waste totals. The success of the pilot program will be reviewed in the fall of 1994.

- **Ongoing Ecology Workgroup.** Ecology has a working committee comprised of its various programs (air, water quality, hazardous waste & toxics reduction, and toxics cleanup) to address ongoing automotive issues, provide cross-program communication, and work on high priority projects, such as a multi-media update of the automotive repair booklets distributed during the shop sweeps.

SHOP SWEEP FINDINGS

Information collected during shop sweep visits can be segregated into four main areas:

✓ First, shop sweep visits provided the state's first systematic, in-depth look at the types and amounts of wastes generated, and how the wastes are disposed of or managed.

✓ Second, the sweeps collected general information on a variety of compliance-related topics as well as other topics, such as floor drain information and whether or not a shop was a member of an automotive association.

✓ Third, the sweeps provided shops with a list of waste management deficiencies discovered, in a "to do" list format. The shop, Ecology, and the appropriate local government each retained copies of the "to do" list as a record of what an inspector would look for upon a future inspection.

✓ Fourth, Ecology inspectors informally ranked shops visited on a simple 1 to 3 scale, with 1's representing good hazardous waste management, 2's average waste management and 3's bad waste management. Figure 2 tallies these rankings. These rankings can be used as a tool for prioritizing future inspections.

The data collected does have its limitations -- it is not comparable to that gathered in a "scientific" survey. The data gathered was susceptible to subjective error from either the businesses reporting the information or the inspector recording it. However, despite any inaccuracies, the data represents by far the best picture to date on statewide management of various automotive wastestreams, and provides a written record of waste management steps shops need to take in order to increase compliance and/or waste reduction and recycling objectives.

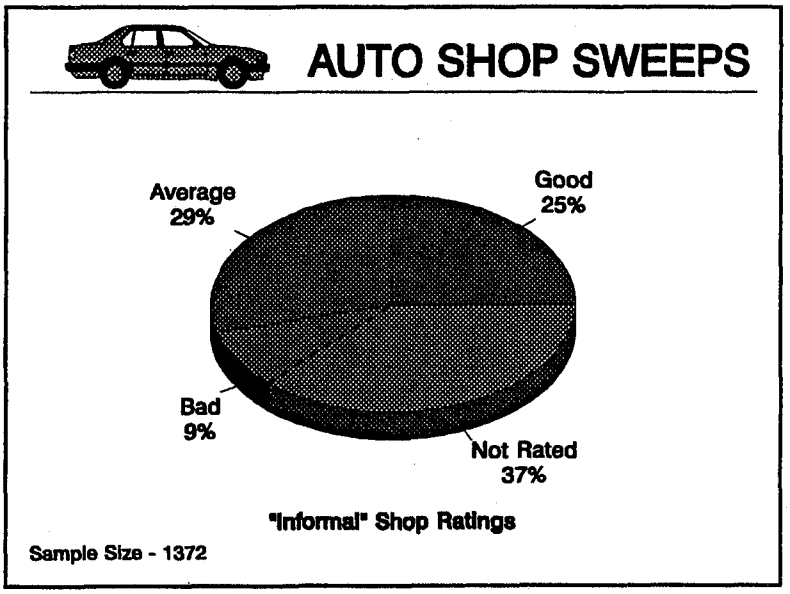

Figure 2 Break down of shop waste management ratings.

Findings by Shop Type

The table below provides a snapshot of the types and average monthly amounts of automotive wastes generated by the range of shop types visited during shop sweeps. For example, the table shows that 60% of auto dealerships in Washington generate used fuel filters, at an average rate of 26 filters per month. Reading down a column heading provides a total snapshot of all wastes generated by a particular shop type.

AVERAGE AMOUNT OF WASTE GENERATED PER MONTH STATEWIDE

WASTES	AUTO BDY	AUTO DLR	AUTO RPR	MACH SHOP	OTHER SHOPS	RADR SHOP	SERVICE STATION	TIRE DLR	TRANS SHOP
Used Antifreeze[3]	5	36	11	1	9	18	12	14	9
Batteries[1]	2	7	7	50	23	4	9	28	2
Brake Fluid[3]		1	1	1	3	3	2	2	0 4
CFC's[4]	3	15	10		8	3	8	11	2
Cabinet Washer Sludge[2]		36	19	299					32
Cold Tank Solvent[3]		8	7	9	12	0 4	6	5	2
Cutting Coolants Sludge[2]				60					
Fuel Filters[1]		26	12		5	4	14	7	5
Glass Bead/Steel Shot Dust[2]				10					
Hot Tank Solution[3]			1	37		11			

[1] = Number [2] = Pounds [3] = Gallons [4] = Cars

Figures rounded to nearest whole numbers, except when such rounding would result in a zero

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AVERAGE AMOUNT OF WASTE GENERATED PER MONTH STATEWIDE

WASTES	AUTO BDY	AUTO DLR	AUTO RPR	MACH SHOP	OTHER SHOPS	RADR SHOP	SERVICE STATION	TIRE DLR	TRANS SHOP
Used Lead Solder[2]							24		
Masking Tape/ Overspray Paper[2]	17								
Other Wastes[2]	19	8	46	62	37	3200	64	11	7
Oven/Tumbler Residue[2]				7					
Paint Booth Filters[2]	12		1						
Paint Wastes[2]	64		21	5		6	10	80	
Parts Washer Solvent[3]	5	23	10	13	9	5	9	8	14
Rinse/Pressure Rinse Water[3]						168			
Rust Inhibitor[2]									
Shop Towels[1]	267	557	386	326	322	166	334	524	514
Spray Cans[1]	3	31	13	12	7	3	9	14	25
Still Bottoms[2]	20								
Sump Sludge[2]	6	321	77	12	16	216	117	10	25
Test Tank Water[3]						1121			
Thinners & Solvents[3]	7	18							
Transmission Filters[1]		18	6		11	1	5	9	64
Transmission Fluid[3]	3	34	12	5	24	5	11	14	188
Used Oil Filters[1]		111	75		207	3	91	85	10
Used Oil[3]	8	183	110	20	294	16	121	142	191
Unknown/Unmarked Containers[3]	56	73	56	16	1057	75	193	20	4

[1] = Number [2] = Pounds [3] = Gallons [4] = Cars

Waste Disposition Findings

The table below provides a snapshot of the "final destination" of different types of automotive wastes for the overall shop sweep campaign. For example, the table shows that 24% of shops that generate used antifreeze claim to reuse it as a product rather than manage it as a waste. Due to space constraints, not all waste management practices encountered are listed; therefore percentages by waste stream may not add up to 100%.

WASTE MANAGEMENT PRACTICES BY WASTESTREAM (% STATEWIDE)

WASTES	Unknown/ Undocumented	On-site or Closed Loop Recyc.	Garbage/ Dumpster	Offsite Recyc. or HW Disposal	Other Disposal	Reuse as Product	Stored On Site	Sewer	Other Drain	Burned On Site	Burned Off Site	Laundry
Used Antifreeze	21	11	1	28	3	24	6	3	1	<1		
Batteries												
Brake Fluid		<1										
CFC's	21	74		1	1	<1					<1	
Cabinet Washer Sludge	39		9	23	13	1	2	6	1	1		
Cold Tank Solvent	25		4	47	8	2	7			<1		
Cutting Coolants Sludge	24		6	36	6	6	11		11			
Fuel Filters	26		64	6	1	1	1				1	
Glass Bead/Steel Shot Dust	37		44	9	3	3	3					

(Continued on next page)

WASTE MANAGEMENT PRACTICES BY WASTESTREAM (% STATEWIDE)

WASTES	Unknown/ Undocumented	On-site or Closed Loop Recyc.	Garbage/ Dumpster	Offsite Recyc. or HW Disposal	Other Disposal	Reuse as Product	Stored On Site	Sewer	Other Drain	Burned On Site	Burned Off Site	Laundry
Hot Tank Solution	27		14	11	14		17	5		2		
Used Lead Solder	15			50	7	15						
Masking Tape/ Overspray Paper	19		75		1	1				3	2	
Other Wastes	37		9	23	6	1	14	1		1		
Oven/Tumbler Residue	56		22			11	11					
Paint Booth Filters	33		60	2	3	1						
Paint Wastes	27		8	41	7	4	5	2				
Parts Washer Solvent	22		2	58	3	1	3			1	<1	
Rinse/Pressure Rinse Water	14			5	5	5		52				
Rust Inhibitor	30		50			10			10			
Shop Towels	3		10		<1					<1		85
Spray Cans												

(Continued on next page)

WASTE MANAGEMENT PRACTICES BY WASTESTREAM (% STATEWIDE)

WASTES	Unknown/ Undocumented	On-site or Closed Loop Recyc.	Garbage/ Dumpster	Offsite Recyc. or HW Disposal	Other Disposal	Reuse as Product	Stored On Site	Sewer	Other Drain	Burned On Site	Burned Off Site	Laundry
Still Bottoms	19		10	43	5	5	10					
Sump Sludge	32		23	12	17	1	5	1	2	<1	<1	
Test Tank Water	8		12	4	12	4		38	8			
Thinners & Solvents	28		2	34	11	4	12					
Transmission Filters	7		78	13	<1	<1	<1			<1		
Transmission Fluid	4		<1	<1	<1		<1			<1	<1	
Used Oil Filters	6		72	20	1		1			1	<1	
Used Oil	8	<1	<1	60	3	<1	3			12	13	
Unknown/ Unmarked Containers	47		1	7	3		33					

General Findings and Database Queries

There are literally hundreds of different questions or question combinations that can be asked of the database in the form of queries. While it is impractical to address such a large list of questions and answers in a summary report such as this, below are listed several categories of the different types of questions that can be answered from the database, with samples from each category included.

General Questions

- **What is the breakdown of businesses visited?** 169 auto body, 71 auto dealerships, 701 auto repair, 53 machine shops, 39 radiator shops, 99 service stations, 70 tire dealers, 35 transmission shops, and 84 other.

- **What was the average amount of time spent on-site during a shop visit?** 45 minutes.

- **What is the break down of generator types by size?** See Figure 3.

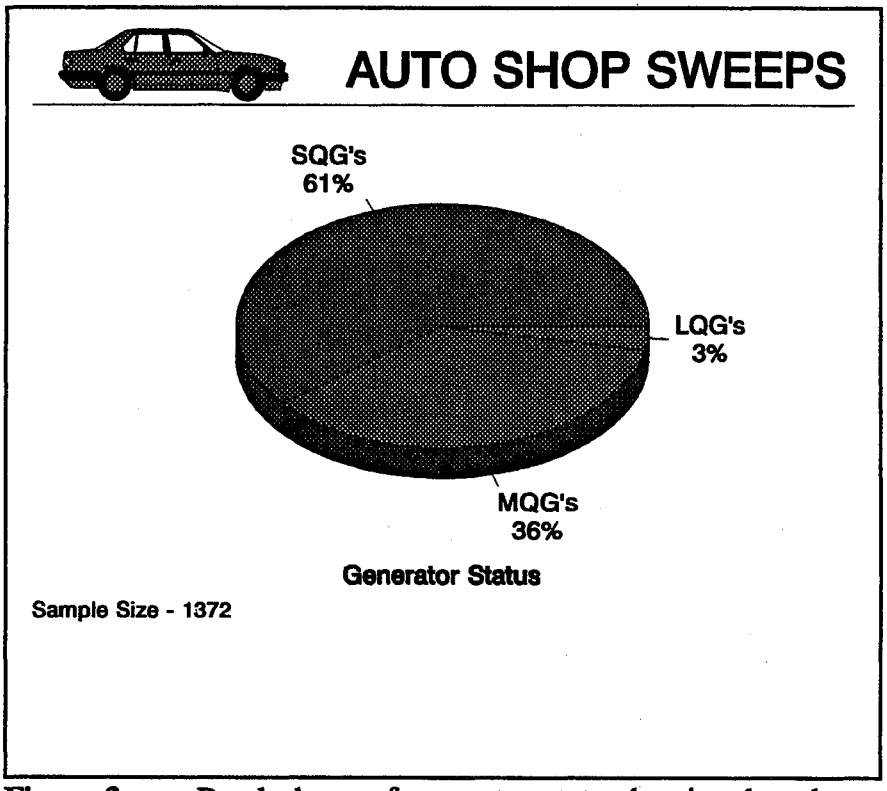

Figure 3 Break down of generator status by size, based on shop sweep sample.

- **How many shops use chlorinated aerosol sprays?** 32% of all shops use spray cans with chlorinated solvents, 35% don't use chlorinated sprays and 33% of shops have unknown use of chlorinated sprays.

- **How many shops that generate used oil filters claim to recycle them?** 17 percent.

- **What percent of shops claim membership with a trade association?** 32 percent total (highest is auto dealers (55%) and lowest is auto body (26%)).

Statewide Waste Aggregates

Using shop sweep data and conservative estimates of statewide numbers of automotive repair businesses, approximate annual waste generation amounts for given wastes can be calculated from the database.

- **How many gallons of used antifreeze are generated annually in Washington?** 1.2 million.
- **How many used fuel filters?** One million.
- **How many tons of used lead solder in radiator shops?** 35.
- **How many 55-gallon drums of used paint thinners and solvents?** 4,000.
- **How many aerosol spray cans used for lubrication and degreasing?** 1.3 million.

Waste-specific Questions (for example, used antifreeze)

- **How many shops generate some amount of waste antifreeze?** 46 percent.
- **In shops that generate used antifreeze, what is the average amount generated per month?** 13 gallons.
- **In shops that generate used antifreeze, what is the average amount accumulated on site?** 41 gallons.
- **How is used antifreeze managed?** 5% used closed-loop recycling units, 6% do other on-site recycling, 28% recycle or dispose off-site, 24% claim reuse as product, 6% put it down a drain, on the ground or in the garbage, 2% add it to used oil, while 21% of management is unknown or undocumented.
- **What percent of shops generating used antifreeze claim to manage it as hazardous waste?** 44.
- **What percent of shops were medium or large quantity generators because of used antifreeze alone?** 33.

MAJOR MANAGEMENT CONCERNS IN SHOPS

Listed below are some of the biggest waste management problems found during the shop sweep visits. Ecology strongly encourages shops to address these key problems as found in their own shops, so that more shops are able to compete on a level playing field.

Major areas of concern include:

- **Disposal of wastes or wastewater to floor drains that don't lead to a sanitary sewer** -- shop owners need to first identify where their drains lead. They don't automatically go to a sanitary sewer or treatment plant. Second, if they find their drain is not connected to a sanitary sewer, they should take proper steps to close it off.

- **Unmarked containers of waste** -- these force an inspector to assume the content is hazardous. Unless the shop can show that it is not, this may result in testing and out-of-pocket costs to the shop owner.

- **Lack of hazardous waste records** -- such as manifest copies, receipts and bills of lading documenting past actions. Keep a file of such records.

- **Saturated shops towels** -- using shop towels as a disposal mechanism for liquid wastes such as used solvents and antifreeze is unacceptable. Use shop towels for their intended cleaning purpose only and wring out any excess liquid waste into the proper waste container.

- **Leaking or open containers** -- especially those exposed to weather and those near areas with stained or discolored soil indicating soil contamination problems. All containers should be structurally sound and kept closed except when waste is being added.

- **Sloppy housekeeping** -- Ecology discourages sloppy, unorganized storage of your wastes. Managers should designate one area in their shop to put all their wastes in. The area should not be exposed to weather and should contain spills. Empty barrels and containers should be recycled.

- **Not keeping separate containers for each waste** -- shops should keep separate containers for each waste stream. Label all waste containers in bold letters -- "USED OIL ONLY", "USED ANTIFREEZE ONLY", etc. and add the date when waste first enters the container. This will show that your shop is well organized, and will help train shop technicians about the importance of keeping different wastes separated.

INITIAL CONCLUSIONS & RECOMMENDATIONS

Based on input from Ecology and local government staff, the following initial conclusions and recommendations are offered. Additional conclusions and recommendations will be added upon completion of ongoing evaulation and follow-up efforts. Initial recommendations are presented as a series of brief bullets:

- Pollution prevention in combination with a regulatory approach is more effective than a pollution prevention approach alone.

- Based on the performance of the Spokane interns during the second round of shop sweeps, Ecology should strongly consider incorporating interns into the next targeted-industry campaign in each regional office. This is a potential win-win situation for both Ecology and the interns. Using the Senior Environmental Corp is another option.

- Need early notice, coordination and program planning with regional offices to avoid the feeling of drawing resources away from other regional projects.

- Need firmer ground rules for external workgroups that work in partnership with Ecology on these projects in order to assure fairness and efficiency.

- Don't underestimate the importance of and amount of time needed to create a checklist that is simple and easy to use in the field, yet allows for simple and easy data entry; make intent of checklist more clear to field staff.

- Make better use of service and equipment vendors and suppliers to help advertise or provide information to businesses during a campaign.

- Need greater level of involvement from and coordination with local governments, especially when targeting industries with a large percentage of small quantity generators. Early contact, even before a project begins, is important in order for local governments to plan resources.

- Supply regional offices with a "tool box" they can use to do a superior job, such as maps, a separate travel fund charging code, etc.

- Supply businesses with practical "hand outs" besides written education materials, such as pre-printed waste stream/container labels, vendor information, etc.

- Make sure we get the most out of other programs pledged support.

- Stretch out amount of time to conduct shop sweeps to avoid field staff "burn out".

- Provide better management answers to "pesky" waste streams like fuel filters and brake fluid.

- Offer more training to Ecology and local government staff.

WHAT'S NEXT

As suggested by Ecology hazardous waste field staff during follow-up evaluation, front running industries for a similar campaign were ranked as follows:

1. Dental Offices

2 Photo Labs
Electroplaters
Printers

3. Hazardous Waste Transporters
Labs
Hospitals
Dry Cleaners
Cabinet Makers

With money from an EPA Pollution Prevention Incentives for States grant, the targeted-industry approach will be refined and used again with hazardous waste generators in the printing and photofinishing industries, beginning in October 1993.

SOUNDKEEPER PROGRAM

SPONSOR
Puget Sound Alliance

PIE FUNDING
$ 36,000

ADDITIONAL RESOURCES
Over the course of this project the Soundkeeper annual budget grew from $ 8,000 to over $125,000 through corporate and foundation support.

TARGET AUDIENCE
Citizen organizations

AREA COVERED
Soundwide

PURPOSE
- To protect Puget Sound water quality by creating a boat-based ombudsperson program modeled after the Hudson River-keeper and San Francisco Baykeeper.
- To train interested citizens in water quality issues and develop a volunteer network of Citizen Soundkeepers.

PROJECT COORDINATOR
Ken Moser,
Puget Soundkeeper
Puget Sound Alliance
4516 University Way NE
Seattle, WA 98105

(206) 286-1309

PROJECT TIMELINE
1990-1991

METHODS
- Creating the position of Puget Soundkeeper.
- Establishing a Soundkeeper Hotline.
- Creating a Soundkeeper Log—a database to track reports of water pollution incidents.
- Publicizing the program through media and outreach programs.
- Developing the Citizen Soundkeeper training and volunteer activities.

RESULTS
- Because of routine patrols, the Soundkeeper intervened in about six pollution incidents each month during the life of the project. One case was resolved directly between the Soundkeeper and the reported polluter; numerous others were referred to appropriate agencies for action.
- Forty volunteers were trained and recruited to the Citizen Soundkeeper program.

NOTES

In citizen monitoring programs, volunteers become "eyes and ears" on water quality. In the Soundkeeper program, they play an additional role, observing and reporting industrial discharge practices that affect water quality. This kind of program walks a fine line between education about and enforcement of environmental laws. Yet it has fostered an atmosphere of mutual respect among environmentalists and industry. Most importantly, it has brought citizens into contact with those who literally hold the fate of clean water in their hands.

STORIES FROM EAGLE HARBOR

SPONSOR

Theatre in the Wild

PIE FUNDING

$ 5,700

ADDITIONAL RESOURCES

In-kind services of $ 750 from contract faculty.

TARGET AUDIENCE

Elementary school children, their parents and the community-at-large.

AREA COVERED

Bainbridge Island

PURPOSE

- To educate participating children about protecting local shorelines and the marine habitats of Eagle Harbor.
- To promote concern for the health of Eagle Harbor by producing and performing an original play, based on the ideas and stories of local children.

PRODUCTS

Voices of Puget Sound: Using Theatre to Teach About Watershed Protection handbook.

UNEXPECTED CHALLENGE

Most children are involved in numerous after-school activities. Therefore, devising a rehearsal schedule for children from three different schools proved difficult.

A LIFE OF ITS OWN

One Bainbridge Island merchant's association wants to sponsor a performance of the play as part of the annual "Island Days" festivities.

PROJECT COORDINATOR

Theresa May
Theatre in the Wild
9758 Arrowsmith Ave.
Seattle, WA 98118

(206) 722-7026

PROJECT TIMELINE

1989-1991

METHODS

- Selecting children to develop a story using creative dramatics, theater games, story telling and animal characterizations.
- Taking children on field trips to explore local uplands, tidal zones, development sites and the Suquamish Tribal Museum and to hear about the early settlers on Bainbridge Island.
- Writing and producing a play based on the children's ideas.
- Performing the play for the Bainbridge Island community in an outdoor waterfront location.

RESULTS

- A group of 450 children, parents, volunteers and community members took part in the production and performance.
- A post-performance survey indicated an increased understanding of the interconnectedness of household hazardous wastes, the local watershed, land development, harbor industry and the quality of water and life in Eagle Harbor.
- The children assumed responsibility and leadership, while learning environmental science and dramatic arts.

NOTES

This project focused on watersheds and our roles within them. Students reflected what they learned about their environment by creating and acting out stories. In doing this, children of Bainbridge Island began to see the interplay of places and living things — including people — that make where they live distinctive.

CANAL CLEANERS

SPONSOR

Office of Water Quality, Mason County Department of Health Services

PIE FUNDING

$ 30,000

ADDITIONAL RESOURCES

$ 4,439 from Mason County.

TARGET AUDIENCE

Residents along Finch Creek.

AREA COVERED

Hoodsport

PURPOSE

To teach homeowners to recognize septic pollution problems and how to repair them.

PRODUCTS

Worshop package, including invitations, fact sheets and other materials.

PROJECT COORDINATOR

Wayne Clifford
Mason County Dept. of Health Services
P.O. Box 186
Shelton, WA 98584
(206) 427-9670

PROJECT TIMELINE

1991-1993

METHODS

- Developing a house-to-house traveling water quality education workshop for shoreline and upland homeowners in the Hoodsport area of Hood Canal.
- Holding "kitchen table" workshops for small groups of neighbors.
- Teaching residents in "problem" neighborhoods to use dye tests to find and prove septic system problems to themselves.

RESULTS

- Because of this project's emphasis on self-education, the community has recognized that it has a serious water quality problem and is developing alternatives for solving the problem on a community-wide basis.
- This program model has been adopted in three other communities with similar failing septic system problems.

NOTES

No one likes to acknowledge they contribute to a water quality problem, particularly if they might be evicted or fined as a result. In this project, Mason County chose to educate Hoodsport residents about leaking septics before using enforcement. Once the severity of the problem was known, the county helped the citizens organize meetings and bring in outside technical assistance to solve the problems. What could have been "intervention" was transformed into "involvement."

Education Program on the Use of Portable Pumpout Facilities

Sponsor

Northwest Yacht Brokers Association

PIE Funding

$ 15,700

Additional Resources

$ 45,000 from the Environmental Protection Agency through the Puget Sound Water Quality Authority.

$ 15,000 for construction, installation and other project-related expenses.

Target Audience

Recreational boaters, marina owners and operators and law enforcement and regulatory personnel.

Area Covered

Soundwide (with national application)

Purpose

- To educate boaters about and demonstrate the feasibility of portable pumpout stations.
- To provide more convenient and practical alternatives for boaters to properly dispose of their waste.

Products

- Eight portable HoneyWagons.
- *Don't Flush Here* brochure.

Audience Response

"You...have presented the boaters a genuine, workable solution. The 30 minutes required to fetch the HoneyWagon, pump out the holding tank, return and pump... and rinse the HoneyWagon is such a small commitment every two weeks it is unimaginable why one would not use this innovative devise."

— Alline and Joe DaPron, Puget Sound boaters

Project Coordinator

Jeffrey Briggs
c/o Northwest Yacht Brokers Association
2442 NW Market #321
Seattle, WA 98107

(206) 298-7895

Project Timeline

1990-1991

Methods

- Field-testing HoneyWagons (portable pumpout systems for boats) at Ballard Mill, Fremont Boat Company, West Bay, Eagle Harbor, Pleasant Harbor, Liberty Bay and Cap Sante marinas and at the Port of Friday Harbor.
- Presenting educational programs on portable pumpouts as alternatives to improper waste disposal.
- Researching, writing and producing a brochure on the issue of boat waste disposal.

Results

- Presentations were made to 10 Puget Sound boaters groups.
- During the 1991 boating season—June through August—HoneyWagons were used 1,111 times (compared to 153 uses of stationary pumpout facilities). A total of 22,220 gallons of waste were pumped into HoneyWagons—more than seven times the amount pumped into stationary facilities.

Notes

New technologies take root slowly, particularly in areas like boating, where traditions and skills go back centuries. In this program, boaters were taught to use recently developed portable pumpout stations to empty their boats' toilet holding tanks. The "HoneyWagons," which are more convenient and considerably less expensive than fixed pumpout stations proved their feasibility. Boaters taught how to use them showed that new practices can be adopted if enough emphasis is given to the "how" and "why."

Hazard Free Days in Kirkland

Sponsor

Metrocenter YMCA

PIE Funding

$ 30,000

Target Audience

Businesses and residents of Kirkland.

Area Covered

Kirkland

Purpose

- To decrease dependence on hazardous household materials and reduce the amount of hazardous material that reaches Puget Sound from individual homes and businesses.
- To provide technical resources that improve the relationships between small-quantity waste generators and public regulatory agencies.
- To develop a constituency for water quality among businesses, youth and families in the community.

Products

- *Hazardous Materials Project News* newsletter.
- *Hazardous Waste in My Home or Office?* brochure.
- Pledge cards.

Unanticipated Result

Businesses showed unexpected support for the program by assisting in the public education components of the project, as well as participating in the pledge drive.

Project Coordinator

Richard Conlin
Metrocenter YMCA
909 Fourth Ave.
Seattle, WA 98104
(206) 382-5013

Project Timeline

1989-1991

Methods

- Conducting six household hazardous waste collection days in Kirkland.
- Developing a public awareness campaign on household hazardous waste and securing pledges from individuals and businesses to reduce the use of hazardous waste.
- Developing action programs for youth.

Results

- Approximately 30 tons of hazardous waste were collected and disposed of properly, preventing accidental or intentional disposal that could have affected Puget Sound. Over 1,700 people participated in the waste drop-off events.
- 1,400 individuals signed pledges to change buying and disposal practices that involve household hazardous waste. Forty-two businesses also signed pledges.
- Through program publicity and a series of columns appearing in the *Bellevue Journal American*, over 45,000 people heard about the program or received information to help reduce their use and improper disposal of household hazardous waste.
- Significant portions of the program have carried on beyond PIE funding.

Notes

Mobilizing an entire community on important environmental issues requires defining the problem and developing solutions for many types of audiences – all at once. Families, businesses and youth were all targeted, but the real orchestration involved media, regulatory agencies and other community organizations. During this project's life, Kirkland residents may have felt bombarded with household hazardous waste messages. In fact, they were. Because of superb timing and coordination, the messages all reinforced each other, exceeding the project's objectives and leaving a legacy of success in the community.

NORTHWEST DAIRY SHORTCOURSE



SPONSOR

Washington State University Cooperative Extension – Whatcom County

PIE FUNDING

$ 4,157

TARGET AUDIENCE

Dairy farmers, agribusiness, agency representatives, conservation district employees, media and University faculty, staff and students.

AREA COVERED

Soundwide

PURPOSE

To reduce the negative water quality effects of dairy industry manure and improve manure management practices.

PRODUCTS

Published proceedings from the shortcourse

UNEXPECTED OUTCOMES

Participants appreciated the emphasis on education rather than regulation, although the fact that an estimated 20 percent of farmers are not in compliance demonstrates that education efforts are incomplete.

PROJECT COORDINATOR

David Grusenmeyer
WSU Cooperative Extension – Whatcom County
1000 N. Forest
Bellingham, WA 98225
(206) 676-6736

PROJECT TIMELINE

1991-1993

METHODS

- Recruiting national experts to educate participants of the Northwest Dairy Shortcourse about proper manure management practices, the economics and importance of nutrient management, the impact and costs of nonpoint source pollution, and the development of the state Department of Ecology's dairy waste discharge permit program.

RESULTS

- Two hundred and twelve people attended the Northwest Dairy Shortcourse.
- Based on a follow-up survey of farmers who attended the shortcourse, 17 dairy producers adopted new manure management practices based on what they learned.

NOTES

This program used an existing educational event – the Northwest Dairy Shortcourse – to train a select group of dairy farmers on proper manure management. Follow-up surveys showed that the program was effective. Over one-third adopted new practices as a result of the course. The lesson here for educators is to use educational techniques familiar to a specific audience and follow up with participants to determine how they view the usefulness of the new knowledge.

Change and Recycle (C.A.R.) Oil Program

Sponsor

Communications Northwest

PIE Funding

$ 25,000

Additional Resources

In-kind service contributions from Communications Northwest.

Target Audience

Do-it-yourself oil changers and oil retailers, wholesalers and processors.

Area Covered

Soundwide

Purpose

- To involve retailers of motor oil in promoting recycling and proper disposal of their product.
- To educate do-it-yourself oil changers of the consequences of dumping used oil improperly, and to encourage them to recycle or properly dispose of the oil.

Products

- Window stickers and counter cards for stores promoting oil recycling.
- Brochure with discount coupon for reusable oil recycling kit.
- Training packet for store employees.

Unexpected Outcome

Initially it was difficult to find locations that accept used motor oil. However, after learning of this difficulty, several committee members began collecting used oil at their stores. Two additional retailers and two recycling businesses voluntarily joined the project.

Audience Response

"Our customers and our employees have appreciated the community effort to clean up Puget Sound. I've received over 500 redeemed coupons... With this in mind we have opted to reprint the brochure at our own expense."

—Laura Stutsman, program participant

A Life of Its Own

Several of the cooperating retailers reprinted brochures and continued the program at their own cost.

Award

The project received a Totem Award from the Puget Sound Chapter of the Public Relations Society of America.

Project Coordinator

R. Danner Graves
Communications NW
111 W. Harrison St.
Seattle, WA 98119

(206) 285-7070

Project Timeline

1990-1991

Methods

- Convening a 10-person design committee, with representatives from auto supply, auto parts and auto services shops plus hazardous waste processors and competitors in the oil market joining together for environmental protection.
- Installing education and promotion programs in retail outlets.
- Distributing 100,000 brochures (each with a discount coupon for purchase of a reusable oil recycling kit) to the public in 50 school districts.
- Publicizing the program through the distribution of media kits to newspapers and TV stations.
- Training employees in all participating stores to promote oil recycling.
- Distributing 500 counter cards explaining the program to retail outlets.
- Encouraging the next generation of do-it-yourself oil changers to recycle oil by making information available to all public high schools and vocational schools that offer auto mechanics training.

Results

- Elements of this program have been permanently adopted by several large automotive retailers, including Shuck's, Al's Auto Supply, NAPA and Fred Meyer.

Notes

Involving critical players in an advisory or steering committee role can help correct problems as they emerge during a program. In this project, the lack of oil recycling drop-off facilities was corrected because of the commitment to success by key business representatives on the advisory committee. They were able to mobilize resources midway through the program to ensure success. That commitment went beyond the scope of the original problem to provide a solution that long outlasted the project.

Hazardous Waste Management Assistance for Drycleaners

Sponsor

Washington State Drycleaners Association

PIE Funding

$ 37,000

Target Audience

Owners and operators of drycleaning services within the Puget Sound region.

Area Covered

Soundwide

Purpose

- To inform drycleaners of the effects of improper disposal of hazardous waste generated by their businesses, the benefits of proper disposal and the options available for proper disposal.
- To improve compliance with proper waste management guidelines.

Products

- Brochure, in Korean and English, on the effects of improper waste disposal and the benefits and savings of proper disposal.
- Profile of Puget Sound drycleaners.

Project Strategy

To develop an efficient system for scheduling one-on-one visits, the project team used a computerized system that included the locations of highways, nearest cross streets and numbered exits from freeways. With this information, visits could then be easily plotted on an existing state map.

A Life of its Own

EPA, Region 10, highlighted the project as part of an educational video for drycleaning professionals throughout the United States.

Audience Response

Writing for *The Western Cleaner and Launderer*, Jack Ellison lauded this effort as a "unique, first of a kind" project. "Although owners have no obligation to comply, they usually immediately see this as an opportunity to learn and benefit."

Project Coordinator

Deborah Rechnitz
Wa. Drycleaners Assn.
3425 Vernhardson St.
Gig Harbor, WA 98335
(206) 851-6327

Project Timeline

1989-1991

Methods

- Preparing and distributing a technical brochure (in English and Korean) for drycleaners, including the costs and fines of improper disposal and the methods and available resources for proper disposal.
- Compiling a profile of drycleaners in the Puget Sound region (for example, the numbers of Korean-speaking business owners and employees or establishments complying with current hazardous waste regulations).
- Training a field representative in communication skills, industry standards, needs of small drycleaning establishments and Korean cultural awareness.
- Providing one-on-one training to over 1,200 drycleaning establishments in the Puget Sound region, beginning with those not complying with existing hazardous waste regulations.

Results

- Research showed that at the beginning of the project, approximately 57 percent of all drycleaning establishments were in compliance; at the end of the project, that number had grown to 95 percent. Forty percent of the people visited were of Korean descent.

Notes

Small businesses often lack the resources to incorporate new technologies or comply with new regulations. This problem may be worsened if there are language or cultural barriers involved. In this project, a trade association provided technical assistance — in two languages — to help individual businesses adapt to changes in the regulatory environment. The results reaffirm the strength of peer education as an effective tool.

Storm Drain Stenciling

Sponsor

Skagit Valley YMCA

PIE Funding

$ 3,198

Additional Resources

Materials and volunteer time donated by local government, the Department of Ecology and Draper Valley Farms Corp., plus $ 2,290 raised from other sources.

Target Audience

Members of the YMCA Earth Corps and other residents of the Skagit River Valley.

Area Covered

Skagit County, focusing on neighborhoods with storm drains.

Purpose

- To reduce the amount of pollution entering Puget Sound via Skagit County storm drains by bringing together YMCA Earth Corps and area groups in a cooperative effort.
- To develop youth leadership skills in environmental stewardship.
- To educate residents about the storm drain system and responsible disposal of wastes.

Products

4,000 door hangers with waste disposal information.

Unexpected Challenge

Graduation and other losses of YMCA Earth Corps student organizations made completion of the project a challenge. Corps team leadership was carried forward by the remaining young people who continued to support the project.

Unanticipated Success

Outreach to a Mt. Vernon middle school resulted in students adopting a local creek and taking on responsibility for stenciling the neighborhood near their school.

Project Coordinator

Julie Carpenter
Skagit Valley YMCA
215 E. Fulton St.
Mt. Vernon, WA 98273
(206) 428-8553

Project Timeline

1991-1993

Methods

- Educating residents about the storm drain system, its connection to Puget Sound and an individual's responsibilities in preventing pollution from entering the system.
- Making presentations in classrooms about storm drains and stenciling.
- Stenciling storm drains with the message "Do Not Dump–Drains to Stream."
- Preparing a materials and procedures record for others to use when the storm drains require re-stenciling.
- Distributing over 3,000 informational door hangers in areas with storm drains.

Results

- Public works departments now have maps indicating the storm drains stenciled in their cities.
- The youth involved in stenciling revealed tremendous shifts in their attitudes as they became responsible "stewards of the storm drains."

Notes

Storm drain stenciling has become a common class activity to help students understand that streets are also waterways when it rains. In this project, Earth Service Corps participants used the visibility of storm drain stenciling to conduct door-to-door outreach in their semi-rural neighborhoods.

Water Quality Learning at Greywolf Elementary School

Sponsor

Clallam County Department of Community Development, Water Quality Office

PIE Funding

$ 28,000

Additional Resources

$ 10,200 from the Washington Department of Wildlife, U.S. Fish and Wildlife Service and North Olympic Salmon Coalition.

Target Audience

Students, parents, faculty and staff at Greywolf Elementary School and community members.

Area Covered

Matriotti Creek and the Dungeness River watershed.

Purpose

- To foster water quality and habitat awareness among children and adults in the Dungeness River watershed.
- To create a water quality learning center and ongoing educational program at Greywolf Elementary School on Matriotti Creek.

Products

A permanent environmental education learning station on the school grounds.

Hands-On Education

"Being able to get down to the water, to see it up close, to work in and around the stream will be invaluable in developing awareness among participants."

—Claire Rogers, coordinator for the Matriotti Creek Community Educational Learning Area

Project Coordinator

Claire Rogers
Clallam County Department of Community Development
Water Quality Office
223 E. Fourth St.
Pt. Angeles, WA 98362
(206) 683-2037

Project Timeline

1991-1993

Methods

- Providing hands-on water quality and habitat education in the Dungeness River watershed.
- Installing signs that describe the relationship of Matriotti Creek to other neighboring water bodies, including Puget Sound.
- Enhancing physical and biological characteristics of Matriotti Creek through streamside plantings, land stabilization and restocking with juvenile salmon.

Results

- Nine hundred people were involved in restoration activities and workshops.
- A 1,500 foot stretch of Matriotti Creek was restored as salmon and trout habitat, including the school site and adjacent properties.
- A school board representative attended a land use hearing, voicing concern about water quality impacts from a proposed upstream development.
- The project is being viewed by many area property owners as an attractive example for their own property.

Notes

Teaching about the importance of habitat protection must be accompanied by "doing." In this project, the community mobilized to restore fish habitat and create an environmental learning center adjacent to a new elementary school. Inspired and energized by that project, neighboring landowners volunteered to restore their reaches of the stream. What began as an effort to "teach kids" became a successful learning experience for the whole community.

SOUND DESIGN:

Water Quality Awareness for the Design Community

SPONSOR

American Institute of Graphic Artists (AIGA), Seattle Chapter

PIE FUNDING

$ 20,000

ADDITIONAL RESOURCES

In-kind contributions of $ 12,000 in printing and mailing costs and volunteer time.

TARGET AUDIENCE

Professionals and students in the design, printing and photographic industry (including public and corporate communications directors).

AREA COVERED

Soundwide, primarily King County.

PURPOSE

- To plan and implement a peer education program demonstrating effects of production, disposal and recycling practices on Puget Sound streams, wetlands and marine environments.
- To encourage the industry to order, use and market more environmentally safe products and to educate their clients about alternatives to present practices, products and materials.
- To encourage designers and printers to re-evaluate established industry attitudes, aesthetics and practices and promote more responsible use and design of materials.

PRODUCTS

- *Sound Design*, a guidebook on water quality awareness for the design community.
- Set of four posters featuring water quality values and demonstrating environmentally safe printing methods and products.

UNEXPECTED CHALLENGE

The project team experienced difficulty finding accurate non-technical information on the effects of bleach and other print by-products on aquatic life and overall water quality.

PROJECT COORDINATOR

Sharon Mentyka
AIGA/Seattle Chapter
2129 Second Ave.
Seattle, WA 98103

(206) 789-8631

PROJECT TIMELINE

1991-1993

METHODS

- Identifying water quality issues most relevant to the industry.
- Involving design students in research on industry waste disposal and recycling practices.
- Conducting tours of paper mills, de-inking facilities, landfills and recycling centers for professionals and students.
- Bringing together industry professionals with water quality experts to develop problem solving strategies and recommendations for action.
- Developing technical specifications and product guidelines for new products, recycling and disposal practices.
- Sponsoring a seminar to disseminate information to industry professionals and their clients.

RESULTS

- Two hundred students, professionals, clients and consumers attended a seminar for the print and graphic arts industry on choices of products and processes, marketing, and disposal and recycling practices and their benefits to water quality in Puget Sound.
- AIGA/Seattle has initiated a permanent Environmental Issues Committee to explore other protective measures for the print and graphic arts community.

NOTES

Who advises customers of printed products on what paper and ink they should use? Who tells the paper mills what paper they should manufacture? Who tells ink makers what colors are "hot?" You guessed it — graphic designers. This project was carried out by their professional society and helped designers understand just how much power they have in making papers, inks, printing processes and printed products better for water quality.

Resources

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